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ETIOLOGY AND TREATMENT OF PRURITUS ANI

SUMMARY OF EIGHT YEARS' ORIGINAL RESEARCH WORK *

DWIGHT H. MURRAY, M.D.

SYRACUSE, N. Y.

With the exception of cancer, there is probably no disease that afflicts mankind the etiology of which has been so little understood as pruritus ani, vulvae and scroti. I might say that few other diseases have baffled the profession in its efforts to relieve patients as seriously as this.

In every book that contains a chapter on the subject, it is asserted that nearly every disease to which flesh is heir is a cause of pruritus ani, yet the recovery from the original diseases has left them with the same old pruritus. It would seem, therefore, that the profession might have formed a logical conclusion, eliminating nearly all of the so-called causes of pruritus ani, when it was seen that it continued after the disappearance of the various diseases that were supposed to have caused it.

For many years when the American Proctologic Society held its annual meetings, the members asked each other if there was anything new as to the etiology or successful treatment of pruritus ani and the answers were always along the line of continued speculation as to the causes, and empiricisms for treatment, with negative results.

For a number of years I investigated various conditions that I thought were causes, only to find that my theories, when fully tested, were not tenable. In the summer of 1910, an unusual circumstance led me on a line of investigation different from any I had ever followed, which had a bacterial origin in view. I made cultures of the anal skin with the thought that if any bacteria were constantly or nearly constantly present, this might be a step toward a better understanding. My associates and I found that in the first four cases, the patients had *Streptococcus fecalis* as the only constant organism.

After serious consideration I decided to have an autogenous vaccine made from *Streptococcus fecalis* and test these four cases with it. Meanwhile, other patients with pruritus ani came and the cultures in every one showed *Streptococcus fecalis* as the only constant bacteria present.

During the year, definite improvement in these cases, with the use of autogenous vaccine, was noted. In fact, I was at first dumfounded that we should get such good results, but this was before I had sufficient experience in the work to reason out cause and effect, while today from my past clinical experience, it is not difficult to understand the reasons.

In the cases of patients that came to me before this discovery, I had made an abject failure to bring about any real improvement from either treatment or operation. In fact, I had become so pessimistic as to results of treatment or operation that when these patients came, I frankly admitted to them that I had never been able to give benefit, and either tried to send them to some other physician, or discourgae them so that they would voluntarily excuse me.

BACTERIOLOGIC EXAMINATIONS

Our bacteriologic reports show that a skin infection is the cause and when we know that the common symptoms both subjective and objective are almost identical in all cases, this alone gives strong support to the bacteriologic etiology.

The first side investigation that followed was an examination of the blood to determine its phagocytic power against these bacteria. In every patient examined the coefficient of extinction of opsonins for *Streptococcus fecalis* was low, while in patients who had other rectal diseases, without pruritus, it was normal. We found that when the phagocytic power increased, by the use of autogenous vaccine, the itching ceased proportionately, the improvement as a rule being manifested by less frequent attacks and a lessened intensity of the itching. As they improved, many patients said that if itching began they could rub or scratch the parts with relief, the same as when itching occurred on any other part of the body, instead of being compelled to dig at the parts until they were sore and bleeding, as had formerly been necessary.

Textbooks written by some of the ablest men give as causes of pruritus ani all dietetic faults as well as all local pathology of the anal canal. In order to prove whether these claims were true, I examined the history and pathology of 900 consecutive rectal cases from my own records and found that only ninety-four patients had complained of pruritus ani. A year later, Dr. T. Chittenden Hill of Boston made a similar investigation of 3,000 rectal cases treated in the Boston City Dispensary and taken from his own private records. He reported 320 cases of pruritus ani among them, which is the same percentage I found. This of itself is strong evidence that pathologic conditions in the anal canal cannot be the etiology of pruritus ani. If so, we should have far more than 10 per cent. of the cases in all rectal pathology.

Of the patients examined that had pruritus ani I found that 50 were constipated, 5.5 per cent. of the

* Read before the Section on Gastro-Enterology and Proctology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918

900 patients examined; 21 had hemorrhoids, 2.3 per cent.; 20 had ulcers, 2.2 per cent.; 23 had diseased crypts, 2.5 per cent.; 12 had hypertrophied papillae, 1.3 per cent.; 3 had polypi, 0.03 per cent., and 3 had fistula, 0.03 per cent. The skin of 15 was pigmented, 1.7 per cent., and 68 had excess of moisture, maceration and skin fissures, or 7.5 per cent.

ETIOLOGY

It seems to me that my records prove that none of these diseased conditions may be properly classed as causative of pruritus ani, but when present are coincidental. My case records show that there is no other rectal pathology of any account, etiologically, in 90 per cent. of the pruritus ani cases.

We have abundant proof that food has nothing to do with the etiology, though some foods may provoke attacks of itching and the patients may improve under vaccine treatment just the same, whether they are on a full mixed diet or not.

Cases of pruritus ani, complicated with fistula having a pus discharge on the anal skin, have been relieved by autogenous vaccine treatment while the fistula was still discharging, and I have found that when rectal pathology is present with pruritus ani, an operation for its radical cure does not relieve the itching for more than a few weeks, if the streptococcic infection is present.

In other patients having rectal pathologic condition and itching, but without streptococcic infection of the anal skin, an operation for the cure of the rectal pathologic condition permanently relieved the pruritus. Only two cases of this kind have occurred in our series of 185 cases, while at least a dozen patients have relapsed as to the pruritus ani when operated on with the infection present.

It has been demonstrated to my satisfaction that operations do not cure pruritus ani when skin infection is present. Some surgeons make the assertion that operations cure pruritus ani, but I find that after the patients have been operated on, they are free from itching for a few weeks at most, when it returns with increased severity.

Two of the conclusions in my third annual report were as follows:

> The presence of skin infection with a local lesion begets an unfavorable prognosis for the cure of pruritus ani as a result of operative procedure, and, the absence of demonstrable skin infection with pruitus ani, in the presence of a local lesion, will justify making a favorable prognosis for the cure of the pruritus as a result of operative procedure.

Pruritus ani rarely, if ever, extends above the white line of Hilton. This is another proof that pathologic conditions in the anal canal are not a basic cause. The pruritus of diabetics is not in any way connected with bacteriologic pruritus ani, except as a coincidence. Many textbooks state, and the majority of the medical profession believe, that the moisture present in these cases is due to mucus that leaks through the sphincter on the anal skin.

If you examine the skin through a magnifying glass you can see the moisture collecting on the diseased skin, but you cannot see it on the normal contiguous skin. Experience has proved that the moisture is a result of the low grade inflammation of the skin, caused by the infection, and never comes from inside the anal canal unless there is a patulous anus, and even then it is not the same kind as the skin exudate. This is usually caused by some ambitious surgeon who thinks he can cure the pruritus by doing a Whitehead operation, "Ball's operation," divulsing the sphincter muscle, or some other equally inefficacious procedure.

The statement that pruritus ani is the result of skin infection has led some to misinterpret its full meaning, that is, to believe that the bacteria affect only the surface of the skin, and to apply a local treatment that is of little effect or that may be a positive damage to the patient.

To illustrate this, I quote from Mummery's[1] last book in which he states he has tried the autogenous vaccine treatment in several cases with a certain amount of success. He then says:

> It seems to me, however, that if the streptococcic infection of the skin which is undoubtedly present on testing in many of these cases, is the cause of the itching, the best method of getting rid of the infection is direct local application rather than the use of autogenous vaccine. We are not in the habit of using autogenous vaccine to sterilize a patient's skin before operating as we have other and more effectual methods.

TREATMENT

He describes a local treatment by a 2 per cent. solution of iodin in a 75 per cent. rectified spirit, which he drives into the tissue by cataphoresis. This indicates that Mummery overlooked the crucial point of the discovery, that is, that the coefficient of extinction of opsonins in all pruritus ani cases is low for the infective bacteria and that they are found in the skin as well as on its surface; therefore any local treatment that does not increase the phagocytic power of the blood against these germs can have only a very temporary effect. Many physicians are of the opinion that the skin fissures are caused only by the finger nails. If this were true, the parts would not show so many common characteristics, but instead, distinct markings of the finger nails that would not be quite the same in all cases as we now find them.

Other local applications have been used with the same idea in mind and with similar results, such as treatment by the roentgen ray, radium, and other applications that could kill the germs in situ. I have cared for some patients on whom the roentgen ray had been applied to the extent of local burning and sloughing. The pruritus did not improve, but was made materially worse, notwithstanding the burning of the tissues which certainly must have killed the germs then present, but it did not increase the systemic resistance to infection.

The loss in skin pigmentation is a result of the maceration and the bacterial action on the skin. The bacterial infection takes the elasticity out of the skin so that it is like parchment, easily fissured, and the fissures nearly always follow the direction of the skin folds. In severe cases of long standing the skin will break with slight straining much the same as old rubber. The elasticity and resilience have been destroyed by the action of the bacteria and the resultant inflammatory process. With autogenous streptococcus vaccine treatment the phagocytic power is raised, then the excessive itching, moisture and skin fissures gradually disappear, pigmentation returns and the skin seems to resume its elasticity.

1. Mummery: Diseases of the Rectum, New York, William Wood & Co., 1914, p. 241.

Last year I directed the treatment of a New York physician. He had been treated with roentgen ray; the skin about the anus and the abdomen as far as the umbilicus was burned so that he had extensive sloughs. The pruritus and this treatment had incapacitated him for a considerable time and caused the most intense suffering. When healing began, the itching returned with increased intensity. It was at this time that I was appealed to and advised autogenous vaccine.

After a few weeks' treatment I received a letter from him, the conclusion of which I quote:

> Sept. 18, 1917. In conclusion I can report definite improvement in the intensity and frequency of the pruritus. As I am now back on duty we shall be able to judge how matters stand during the exactions and activity of the daily routine work.

Nov. 7, 1917, a report came from his physicians saying, "Dr. —— is fine."

I have now examined 181 cases of pruritus ani bacteriologically and have found *Streptococcus fecalis* as the common germ in 168 of them. Of the thirteen in which *Streptococcus fecalis* was not demonstrated, twelve had only one or two cultures taken and the thirteenth case, an acute one, developed an abscess in the perineum and had no more itching after this was operated on. It is therefore not at all certain that these twelve patients are not infected, because, in a considerable number, *Streptococcus fecalis* was not found until as many as eight or nine cultures had been taken. Therefore the bacteriologic results of these twelve negative cases cannot be considered final.

The reason I did not find *Streptococcus fecalis* in the twelve was probably because the mediums were not properly made. Sometimes the plates are overgrown with other bacteria that choke out *Streptococcus fecalis*.

I have treated 113 of the 181 patients, and distinct relief was obtained in ninety-nine of them. Some of those in whom the greatest relief was experienced were among those with the most distressing cases. Thirteen of them received little or no benefit, but only four of the thirteen received a sufficient number of treatments, so that they should have had relief, according to our experience with the others. Two of the four had the worst vulvar involvement of any I have ever seen, while a third one of the four had a complicating eczema.

The other nine had only a few treatments each, became discouraged and discontinued treatments. They expected too much.

METHOD OF TAKING CULTURES AND APPLICATION

I shall give in an abbreviated way the method of taking cultures and the treatment used. The anal skin should be carefully washed with a weak soap and water solution and rinsed with plain sterile water. No alcohol or other drug is used. A sterile swab is then rubbed on the cleansed anal skin, especially over any skin fissures that exist.

The isolation of *Streptococcus fecalis* is accomplished as follows: The swabs received are gently but firmly rubbed over the surface of solidified standard beef infusion agar in Petri dishes. The agar should have an acidity of 0.5 to phenolphthalein.

The small clear colonies of *Streptococcus fecalis* are readily distinguished from the larger colonies of *Bacillus coli, Staphylococcus albus* and other bacteria encountered in such cultures.

The small colonies of *Streptococcus fecalis* are subcultured on slants of the same kind of agar as that used for isolation.

As a rule, the growth is rapid and luxuriant and a few tubes suffice for the amount of bacterial vaccine desired. However, some strains are encountered that are grown with difficulty.

The bacteria should be killed either by 0.5 per cent. phenol (carbolic acid) solution or a 0.33⅓ per cent. tricresol solution. Heat should not be used.

After the vaccine is proved sterile, it is ready for use and should be kept in a sealed bottle in a cool place. At the time of using, the vaccine should be thoroughly shaken in order that the dead bacteria may be evenly distributed in the dose given.

I begin the dosage with 3 minims, injected into the buttock close under the skin, not into the muscle. The first three or four doses are repeated at intervals of two days, increasing from 3 to 5 minims each treatment, unless a severe reaction is caused by the previous dose. The number of minims at each treatment may then be increased as much as the judgment of the operator dictates. The results will be obtained in most of the cases just as well without local applications of antipruritics except for the temporary relief obtained.

RESULTS

I never promise permanent relief, and do not think it is advisable to do so, no matter how favorably the case progresses, because I have never found what it is that primarily lowers the phagocytic power of the blood so that the original infection occurs. Therefore, if the same condition that originally lowered the resistance remains and again reduces the phagocytic power, conditions favorable for reinfection will be present. If this occurs, the patient must take another course of vaccine treatment to bring the phagocytic power back to normal.

My records show that a majority of the patients who have taken this treatment with favorable results have never relapsed to as severe pruritus as they originally had, and I look on this as a physiologic endorsement of the claims put forth for both the eitology and the treatment.

This was emphasized recently in Case 1 of our series, when the patient (now living in California) came into my office. He reported that he had very little itching at any time and if it did come on, it was easily controlled. This patient had twenty-seven treatments, the last of which was administered five years ago.

A fair question and one frequently asked is: Why is one person afflicted by pruritus ani and another free from it, since the same bacteria are found in the feces of both? We find that the resisting power against these bacteria is below par in the patient afflicted so that the soil in his case is ready while the other has the normal phagocytic power and resists the infection.

POSSIBLE PREVENTIVE MEASURES

The usual method of cleansing after a stool is by using dry paper as a detergent, with which it is impossible to cleanse thoroughly. You can easily demonstrate this by using a moist cloth after you are supposed to be thoroughly cleansed with paper, a method that leaves the fecal matter on the skin between the nates. This skin is an efficient incubator at a proper temperature with just enough moisture for the

rapid growth of bacteria, and on account of being kept in contact with the parts, affords an opportunity for them to find a home in the skin. If there is any possibility of prevention it must be along the line of cleanliness after defecation, as outlined. In women, for prevention of pruritus vulvae, the cleansing should be from the front backward. This is seemingly such an unimportant matter that some may think it unnecessary. I believe that this manner of cleansing would also repay many women by the prevention of a *B. coli* cystitis.

CONCLUSIONS

1. From the data presented by this series of cases, I feel justified in saying that pruritus ani is caused by an infection made by one of the streptococci group, or associated with it. This infection may be the primary, secondary, or aggravating cause. If it is the secondary or the aggravating cause, the primary may already have passed away.

2. Whether the infection occurs because the opsonins for streptococci are low or whether the opsonins are lessened because of the invading organism is not yet known.

3. Statistics of 4,000 distinctly rectal cases show that 414 (about 10 per cent.) had pruritus ani. This is good evidence that, when rectal disease and pruritus ani occur together, it is only a coincidence. When there is pus or other discharge on the skin about the anus, pruritus ani does not often exist unless there is a skin infection.

4. Pruritus vulvae and pruritus scroti are also proved to be skin infections.

5. Pruritus ani rarely extends above the white line of Hilton.

6. The sphincter muscle does not allow leakage of mucus on the anal skin in one who has pruritus ani unless there is a patulous anus, any more than it does in a patient with a normal sphincter muscle who has no pruritus.

7. The skin moisture is produced locally and is due to the low-grade inflammation of the infected skin.

8. The presence or absence of bacterial infection is of great prognostic value if operative work is expected to cure.

9. Pruritus ani will not be improved unless the phagocytic power of the blood is increased, and the pruritus will return if the phagocytic power of the blood is again lowered enough to allow a reinfection.

10. A complicating infection may be present.

11. Pruritus ani, pruritus vulvae or pruritus scroti are not a part of a diabetic condition. When they occur with general pruritus, it is a coincidence.

12. The only possible method of prevention lies in bathing the anal skin after each defecation.

ABSTRACT OF DISCUSSION

Dr. J. M. Frick, Toledo, Ohio: My own experience in the treatment of pruritis ani with autogenous vaccine began five years ago. Great care must be taken in selecting the case as one of true pruritis ani. It is not at all infrequent for an eczema marginatum or some skin infection to be referred to as a pruritis ani, which, of course, would not respond to true pruritic treatment. Among 4,700 candidates for selective service I found pruritis ani to be the most frequent proctologic disease. I have complete records of forty-three private cases. All these patients exhibited the typical skin changes. Twenty-five exhibited no other coincidental pathology; eight exhibited other coincidental pathology; ten had been operated on previously for coincidental pathology, with the theory of producing a cure of the pruritus. Forty were sent to the same laboratory for cultures. Three were treated with autogenous or stock vaccines. Of the forty cultures thirty-eight were positive. One culture was a pure colon bacillus, one a mixed streptococcus culture.

Dr. Dwight H. Murray, Syracuse, N. Y.: How many cultures were taken of those cases?

Dr. Frick: We take only one culture. It is not necessary to get more than one culture. Four patients did not return for treatment, leaving thirty-six treated with the autogenous vaccines and three treated with stock vaccine. Of the thirty-nine treated, thirty-seven have been discharged as cured. Four of these have remained cured for a period of four years. One patient received no benefit, or reported no benefit. One patient was insufficiently treated, owing to moving out of town. Three cases recurred; two cases recurred after a period of one year, and one case recurred in six months. One of the former, and the latter case, are now under treatment. One of the first cases that recurred was a case treated with stock vaccines. Later we had a culture taken and an autogenous vaccine made, and that patient is now doing very nicely. The two remaining cases treated with stock vaccine have remained cured.

Our culture medium differs somewhat from the technic used by Dr. Murray. We have used from the beginning of our work the ascitic fluid of Rosenow.

Dr. E. Eliot Harris, New York: I would like to ask Dr. Murray how often he repeats the injections; also the interval between them, and, further, if he could tell us the strength of the solution he uses and the number of bacteria in each injection.

Dr. J. M. Rector, Columbus, Ohio: I should like to have either Dr. Murray or Dr. Frick tell us something more about the culture. Dr. Frick spoke of Rosenow's agar, and I wish he would tell us something more about that.

Dr. J. M. Frick, Toledo, Ohio: The area is prepared first by soap and water, flushed off with sterile water and dried with a sterile gauze. Remember, the infection is deep, not superficial. We remove the surface just as you would in the ordinary vaccination, without drawing blood, taking the culture on the platinum needle and placing it in the ascitic agar of Rosenow.

Dr. James A. Duncan, Toledo, Ohio: I have had only a limited experience following the method of Dr. Murray. There were nineteen cases in all; seventeen of the nineteen were what we called cured, and cured permanently, we hope, while two were cases in which there was no benefit to the patient. In one case the skin had been washed with alcohol instead of soap and water, which I believe to be the cause of the failure. The other case was one in which I did not curet deep enough. Following that I have had no failures.

Dr. Thomas Charles Martin, Washington, D. C.: We have heard only one side of the question. I believe it is not claimed by Dr. Murray or his exponents of this method that they get 100 per cent. cure by the Murray method.

Dr. Murray: That has never been claimed.

Dr. Martin: And is it not also a fact that in nearly all the reports of cases of treatment of pruritis ani by this method other means have also been employed in the treatment of these patients?

Dr. Murray: You mean at the same time?

Dr. Martin: Yes.

Dr. Murray: Very rarely.

Dr. Martin: I asked that question because I thought the answer would be somewhat different. It is a part of parliamentary practice, of course, to exercise that kind of caution. My reason for anticipating that Dr. Murray's statement would not be what it is is the fact that I have not seen the more recent of his papers; but the early case reports I remember also mentioned other means of treatment as being applied. It was very proper to do so because those methods had yielded good results. However, from the scientific viewpoint, such reports tended to confuse the mind as to on what depended the result. Dr. Murray has not only talked to you about the

autogenous or vaccine treatment of pruritus, but he condemned another method of procedure, a method of procedure which, if employed by hands equally skilled as those which applied this method of vaccine treatment, does yield 100 per cent. of cures. I refer to surgical intervention. The operation is termed the Ball operation. It consists in dividing the cutaneous nerves that supply the circumanal skin. The operation consisted in making an incision on either side of the anus, going through the skin, cutting off the nerves in the loose connective tissue between the skin and deeper structures. For many reasons that method of incision was not very satisfactory mechanically. Later, Dr. Krause of Cincinnati and I designed an operation requiring no suture. This technic has not been published. I make an anterior and posterior incision and cut the nerves supplying the skin. Dr. Murray makes the statement that Ball's operation or any modification of it is to be condemned as useless, often leaving the patient worse than before. I do not condemn Dr. Murray's method of treatment of pruritus ani. But until this time I have yet to be persuaded that it is as dependable a method of procedure, or as positive in its effects, as the surgical operation.

DR. ANTHONY BASSLER, New York: The doctor's case cited by Dr. Murray is the ninth case that I have had to do with that has been treated thoroughly, all of the patients having gotten well except one, and that one is very distinctly improved, but having to use some local means about every six months or a year.

DR. DWIGHT HENDERSON MURRAY, Syracuse, N. Y.: So far as I know, Dr. Martin is the only man who has ever had 100 per cent. cures in pruritus ani from operative procedure. I have seen many cases of pruritus ani in which operation has been performed in the hope of a cure, and the story was always the same. They were free for a little while, just the same as the patients on whom I have operated, but the pruritus returned. I used the autogenous vaccines with great lasting benefit. I have never yet said that I cured a case of any kind. I do not believe it is the province of any physician to claim that he cures his patients. Possibly they get well in spite of him, and he should not take unto himself all of the credit that Nature ought to have. In all the papers that I have written on this subject I have only given the facts as I have found them. I have not said that autogenous vaccine cures any patient. The primary claim that I make is that we have found the etiology. I believe this to be a great step in advance.

In all of my papers I have asked the profession to cooperate with me to find some better treatment, something that will stop the itching for all time, that will enable us to say definitely that the itching will cease at a definite time. I have urged the profession to help, and I will welcome all improvements on present methods that will assure patients a hundred per cent. cure. I do not see how Ball's operation could benefit pruritus scroti, complicated with pruritus ani.

In answer to Dr. Harris' question, I usually begin with 3 minims, and as near as possible the standard strength of vaccine, 2 billions of dead germs per cubic centimeter; the second dose is double the amount, the third dose 3 or 4 minims increase over the last. The dose is increased each time until a strong reaction is produced. The first improvement noted is a less frequent and less intense itching.

DR. HARRIS: How frequently are the doses given?

DR. MURRAY: Every other day for the first four or five doses, until the reactions appear.

DR. HARRIS: How many doses do you give?

DR. MURRAY: The number varies. I have given as many as seventy and as few as seven.

DR. J. M. RECTOR, Columbus, Ohio: Is it necessary to make the injections near the rectum?

DR. MURRAY: No. I make them in the skin of the buttocks. In the last few years, whenever I make local applications on the skin, it has been 20 per cent. protargol; and if I advise the patient to do anything in the meantime, it is usually to apply black wash, let it dry and then dust with compound zinc stearate.

DR. MARTIN: Do you use other methods than the vaccine?

DR. MURRAY: Frequently, but not in every case. Some of these patients are treated without any application at all, and they have improved, just the same as the others. Most of these patients have used ointments of some kind, but I condemn the use of ointments. They are dirty, they macerate the skin, make it worse than before and do very little, if any, good. Many patients are opposed to any sort of operation, and in some cases in which the Ball operation has been done a stricture was grafted on the original disease. Perhaps Dr. Martin will say this was due to an inexpert operator, but Dr. Ball himself abandoned it as ineffective, I am told.

THE SUBNORMAL COLON FUNCTION*

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The colon, considered in its entirety, is essentially an organ of elimination and resorption. Its muscular wall endows it with the property of expansion and retraction, and the variation of its axis and caliber controls the current of its contents toward the anus. Deviation from this physiologic process is recognized as a pathologic condition which may manifest itself in frequent discharges, or by sluggishness. Hyperactivity would indicate an exaggeration of its function by virtue of disease within its chambers or upper tracts, that is, it may be extramural or a neurosis. Sluggishness or atony signifies its inability to mobilize its contents by reason of impaired musculature or innervation, giving rise to the adynamic or subnormal colon. The word "atony," which seems best to express the condition, is derived etymologically from the Greek word "teinein," negative "a," which signifies literally to stretch, a translation that we may liberalize into expansion, contraction and retraction—in short, having the property of elasticity. With the negative prefix, the term is made to mean inertia, or want of power or vigor. Atony is applied to any organ giving evidence of want of vigor as to its function. It is a question whether we should not limit its application to structures not under the control of the will. The muscular structure of the colon is made up entirely of unstriped or involuntary fiber, hence its subnormal function must be due to some inherent factor.

FACTORS IN SUBNORMAL COLONIC ACTIVITY

What constitutes the normal function of the colon? It is debatable what intervals in its evacuation maintain the standards of health, and whether daily periods, alternate days, or longer periods of constipation are compatible with well-being. Metabolic disturbance is apparently not in evidence even in three day constipation or with intestinal inertia of a week's duration. While it has been frequently observed that shorter intervals are conducive to ill feeling and depression, such cases are easily corrected by ordinary measures of diet, exercise and various remedies. But the severe types should receive the best care at our command, to obviate all possible sequelae terminating in destructive metabolism. It is obvious that the vicarious elimination of toxic elements due to physiologic insufficiency of the colon so impresses us with deleterious end-results that we are impelled to regard a daily, or at

* Read before the Section on Gastro-Enterology and Proctology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918

most a bidaily evacuation, as a necessary corollary to health. Some one has said that a daily visit to the "throne of Cloacus" insures one's life that day. With this in view, let us inquire into a few of the many factors that lead to subnormal colon activity: (1) structural deviations; (2) bacterial invasions; (3) occupational influences.

1. *Structural Deviations.*—The cardinal symptoms of the subnormal colon record the presence of mucomembranes, constipation and pain. Glénard himself well describes the disease named in his honor: "Flabby abdomen, outspread like a wallet, looseness, slackness, want of tone of the abdominal walls, bearing down of the bowels and subsequently of the stomach, the kidneys and the liver; and, as may be verified by palpation, either the dilatation or the shrinking of certain portions of the intesine and pulsation of the abdominal aorta." This is the physical picture we adopt in our present consideration.

It is not my purpose to discuss the pros and cons of the antecedents in visceroptosis in its relation to mucomembranous colitis. The inactive colon may exist without enteroptosis. Also, it is certain that enteroptosis may be seen without colitis, but in all serious cases they coexist. The most careful clinical observation can elucidate these problems. It is well to think of some primitive disturbance in the nervous system, or in some predisposition of the economy, by virtue of which intestinal atony, then colitis and enteroptosis may originate on a common basis. The order of sequence matters little. The pain is shifting and accompanies the spasm, occurring in colonic sections, at the angles, then in the sigmoid, the transverse or the caput coli. Spasm of the colon head has led to error in diagnosis, with subsequent removal of a healthy appendix. In examining the large intestine, we find alternate dilatation and constriction, hardness of certain segments and flabbiness of others, displacement of the transverse portion, and gurgling and sonorous splashing, with dull lapping sounds elsewhere. Palpation is frequently painful. The roentgenogram reveals sharpened lateral angles and retarded fecal excursions.

In addition to structural deviations in the bowel itself, the clinician must conjure with certain extramural agencies which provoke the subnormal colon. Bands and adhesions, or a dislocated kidney or stomach combine to irritate the colon. Adhesions succeeding pelvic peritonitis and appendicitis are not uncommon, as well as new growths deflecting normal colonic function. To these may be added anorectal diseases obstructing the evacuation of the colon content.

2. *Bacterial Invasions.*—The colon is a great storehouse for toxins and fortunately is immune in most persons, but repeated mass attacks make dents in the mucosal column of defense, which requires the highest strategy of the clinician to restore. If the first line of defense, the mucosa of the colon, is disabled, the second and third lines, the liver and the antitoxic glands respectively will come to the rescue to neutralize the toxemias. The source of bacteria entering the colon may be the mouth and the gums, the pylorus, a diseased gallbladder, the appendix or any of the pelvic viscera. Besides, bacteria are created in the intestine itself, *sui generis,* by end-products of digestion, and the anaphylatoxin present in certain toxemias, both convulsive and nonconvulsive in character, depend on certain conditions of stasis in the intestine.

3. *Occupational Influences.*—The subnormal colon is rarely found among rural folk. Their active lives in physical effort, with pure air and food, mental contentment and freedom from much worry, are compatible with active secretion and elimination. On the other hand, the anxiety, fear and sacrifice, and perhaps the unsanitary quarters, poor ventilation and sedentary life of the city resident combine to cause the fluctuations on the trophic centers and to inhibit the secretory functions, which terminate in habits of constipation. It is well known how often this effect is encountered in the country lad when he assumes the rôle of college student. Office employment, service in department stores, the mechanic's work and similar occupations requiring intensive effort are conducive to colon stasis, to be self-corrected or otherwise treated. We need only to observe the transforming power of army camp life to be convinced of the salutary effect on previously erratic organs of elimination. The pale-faced city clerk becomes, with his rural comrade, erect, robust and ruddy. I have on record several such cases cured by camp life.

A DIATHESIS

To direct our thought to the subnormal colon, without consideration of certain terminal effects on the economy, would be treating our subject like Ephraim's "unturned cake," half baked. That colonic atony appears to be antecedent to arthritism or at least concomitant with it seems well established. Some students in enterology, notably Axtell and Reed, profess to coordinate subnormal colon functioning with epilepsy, as cause and effect. The correlation of asthmatics and so-called neuro-arthritides in such conditions is well known. It must be conceded, also, that, while constipation is consonant with these ultimate phenomena, not all constipated persons manifest any of them.

These observations show that mucous colitis, either as cause or effect, is in close connection with the nervous system. Analysis of the following facts will demonstrate this more fully. A certain number suffer more or less from intense reflex disturbances going from the irritated intestine, by means of the bulb, thence by that of the pneumogastric nerve or the sympathetic system, and reverberating on the most diverse organs. The heart is subject to this reflex nervous action, with attacks of tachycardia after meals, then intermittences; and an irregularity of the heart's rhythm; and even attacks of pseudo angina pectoris are not infrequent. The proof that these nervous phenomena are correlated with the function of digestion is that they are usually terminated by a stercoraceous evacuation followed by relief.

The terminal threads of the vagus in the lungs are also apt to be affected in the same way. I have often seen marked attacks of asthma from this source. The patient suffocates for want of air, the windows are thrown open, the thorax is immobilized in the act of expiration, and inspirations are made with great difficulty.

In regard to the arthritides as an end-product of intestinal origin, there are undoubted cases, which is in agreement with the splendid researches of Rosenow. Brick[1] says:

> It cannot be claimed that any specific organism is constantly associated with the disease. Some observers have

1. Brick, J. C.: Tr. Am. Proc. Soc., 1912, p. 157.

found the joint fluids sterile, while others have isolated organisms. We may conclude, therefore, that the majority of cases contain no organisms either in the blood or joint fluids. The infection theory of its cause has many features which cannot be determined, such as glandular or splenic enlargement, which at least suggest the result of a toxemia from a distant point, possibly the gastro-intestinal tract. I am inclined to the view that the varied phenomena of arthritis deformans are due to a cerebrospinal toxemia, in other words a trophoneurosis of infective or toxic origin.

Physicians have relieved many cases of neuro-arthritism, by directing attention to a sluggish colon, restoring it to normal activity. This fact is proof that, in some cases at least, it is one focus of infection and becomes a diathesis or predisposition to disease in remote parts.

CONNECTION OF ACQUIRED EPILEPSY WITH COLITIS

There are a few advocates of the theory that acquired epilepsy or those attacks beginning late in life are a trophoneurosis of toxic origin from the colon. In these cases the patients are so easily impressed by the physician's efforts to help them, that he is often misled by their enthusiasm into thinking a permanent cure is at hand, to be doomed to disappointment. Yet permanent cures are reported by some, and much improvement is reported by others, due to keeping the colon clean. Axtell is a firm believer in the correlation of membranous colitis and epilepsy. The demonstration of certain toxemias of the convulsive and non-convulsive type seems a forward step in the solution of this problem.

A patient under my care since 1912, a married woman, aged 47, who had had both grand mal and petit mal attacks at varied intervals for fifteen years, had acquired epilepsy. Twenty years previously, she had had an oophorectomy and appendectomy performed, which had been followed by severe intestinal stasis and colitis, and a few years later with the fits. The neurologist, with his usual remedies, had kept the attacks under control very well, but finally referred the case for treatment of the colon. We found obstinate constipation, glairy mucus, severe periodic cramps, and a large postoperative hernia. The hernia was repaired, at which operation were noted adhesions too extensive to break up, involving the ascending colon and the sigmoid. So with a hope of reducing the colitis to a minimum, and of thus possibly influencing favorably the epileptic seizure, we performed a cecostomy. She has used irrigations of various kinds through this opening during this time, and has had only three grand mal seizures in six years; but it is only fair to state that mild cataleptic spells of momentary duration have occurred rather frequently of late. For two years following the operation, she did not have a single spell. On the whole, she has had a comparatively good six years, when contrasted with the weekly and daily attacks previously recorded.

I am not prepared in this case to deduce any definite conclusions, but I believe that, if the extensive intestinal traumas could be corrected, the correction would go a long way toward clearing up this case permanently. I believe, also, that the case is a good illustration of the verity of the theory that the subnormal function of the colon is a diathesis leading to acquired epilepsy and other neurasthenic dyscrasias. I do not think that epilepsy in young people has this correlation of cause and effect. Yet it is well known how even they improve on intestinal ablutions.

CAUSES AND TREATMENT

When confronted by patients suffering from subnormal colon activity, we write in our case records such notes as: hemorrhoids, migraine, gravel, arthritism, very great nervousness, hereditary nervousness, hepatic lithiasis, gout, rheumatism, impressionability, obesity in the family, and tendency to worry.

To apprehend the essential and underlying cause of this array of symptoms will properly direct the treatment, both medical and surgical. The treatment cannot be considered in extenso, but merely suggested.

Diet is the first desideratum. All articles of food should be avoided whose digestion terminates in much residuum, and further irritates an already jaded colon. We may give milk, meat soups fat-free, porridge, barley, oatmeal, rice, arrowroot, etc.; eggs, boiled, scrambled or in custards; boiled fish, lean roast, and boiled mutton or beef, etc.; vegetables mashed fine, as potatoes, beans, peas and lettuce; but on no account green vegetables.

The time limit will not allow further discussion of diet and medical treatment of constipation. Suffice it to say that a daily evacuation should be secured by mild laxatives, for of the two evils choose the lesser.

How many persons there are who for years go to stool only by means of a daily laxative, and whose health is not worse, but on the contrary better, than that of those persons who, on pretext of not irritating the intestine, allow fermentable, noisome matter to accumulate there constantly! I would suggest liquid petrolatum (mineral oil) as a purgative and periodic morning doses of sodium phosphate in hot water. I would here emphasize the use of iodin to secure the best results in restoring an atonic colon swarming with bacteria. Solutions of half-grain doses of iodin with aromatic fluid extract of cascara sagrada in a palatable vehicle are well borne.

By means of the roentgen ray, structural deviations may be deciphered that will bring the case into a domain of surgical therapy. How many cases of subnormal colon are restored to normal activity by anorectal surgery, appendectomy, cholecystotomy, or intrapelvic adjustment! Ochsner has reported three cases of rheumatoid arthritis cured through an appendectomy which restored colonic function. The abdominal supporter has done good service in many cases of enteroptosis. Partial colectomy, or short circuiting, does not give me as good results as have been reported by other surgeons.

The pendulum is swinging toward more conservative measures in restoring the subnormal colon. Hammock-fixations of displaced viscera should be rarely resorted to. Rather should we endeavor to restore the function by such remedies as strychnin and belladonna to their physiologic limit, together with such remedies as may be secured only by rural environment. Such measures as direct or indirect irrigation, with styptics like krameria, tannin, etc., or, if there is much inflammation, the use of oils, salines, etc., are beneficial. Direct irrigation with cecostomy is effective in severe cases. Finally, a complete survey of the treatment is not designed here, but rather a suggestive outline, with an admonition against drugging as a means of building up broken-down constitutions. Neurasthenics do better on such measures as rest, exercise, good air, proper diet and agreeable environment.

SUMMARY

1. The subnormal colon is a term we have used interchangeably with membranous colitis.

2. The cardinal symptoms are pain, constipation and mucus.

3. Factors to be considered that predispose to atony are enteroptosis, bacterial invasions, occupational environment and neurotic constitutions.

4. It is probably a diathesis toward arthritism, tachycardia, asthma, etc.

5. Further observation should be made in order to link it with acquired epilepsy.

6. Treatment should be comprehensive, each case being a separate problem, to be solved by dietetic, medical or surgical measures, or by all combined.

ABSTRACT OF DISCUSSION

Dr. Dwight Henderson Murray, Syracuse, N. Y.: I think the causes of these troubles that go on to autointoxication, convulsions and chronic nervous troubles are the result of neglect on the part of the profession in not instructing the mother how to care for the child, so that it will not be necessary to give laxatives. Another necessity that we neglect very much is the drinking of sufficient water. The system needs a certain amount of water for elimination, for building up the system and for metabolism. It is also important that one be regular with the the time for bowel movements. I tell my patients that absolute regularity is necessary, and that the proper time is the first thing in the morning. I direct them to sit on the toilet and make the effort, whether they have any desire or not; if this is not successful, I direct them to take an enema of plain water, while lying on the left side. I instruct them not to wait, because normal peristalsis will not take place unless the bowel is about full, and unloading the bowel at night defeats our natural morning action.

Dr. E. L. Eggleston, Battle Creek, Mich.: I believe that a greater number of our patients suffer from some form of colonic disturbance than from any other condition. So far we have not been able to determine definitely the toxic products resulting from bacterial activity in the intestine, although we believe from clinical evidence that specific products are elaborated. I can hardly agree with Dr. Beach that an atonic condition of the colon is frequently found. My observations lead me to believe that in subnormal colon we find a spastic condition in a large proportion of the cases. When there is severe constipation, the roentgen examination reveals a spastic condition of the distal colon with a dilated cecum, and especially do we find this condition to obtain in neurasthenia and other conditions where there is a disturbance of the vagosympathetic nervous mechanism. If you make inquiry of these patients as to how long it has been since they have had a formed bowel movement, they will tell you it has been weeks, or months, or sometimes years. This condition is practically always the result of a spastic condition of the colon, and an improvement in their condition is indicated by the passage of a normal formed stool. This has resulted, not from irritating the colon by cathartics, but from relieving the local congestion and by measures that tend to restore a normal nervous state. I believe that there are two conditions which are responsible for this spastic condition, one a local condition incident to the neglect on the part of the patient in properly caring for himself by allowing the intestinal contents to accumulate for an abnormal length of time, and the other a reflex nervous condition. Dilatation of the colon, particularly the cecum, is entirely the result of the spasm of the distal colon and the dilatation can be relieved only by measures that relieve the spastic condition of the pelvic and ileac portion of the colon. Rest, bland foods, heat externally, warm oil enema, and agar-agar and liquid petrolatum by mouth are measures that are well adapted for the relief of such conditions.

Dr. W. H. Stauffer, St. Louis: The factors involved in producing subnormal colon function are generally threefold: dietetic disturbances, adhesions resulting from surgical operations, generally of the uterus or adnexa, and the local conditions of the lower bowel produced by the use of cathartics and the improper use of enemas. One school of pediatricians teaches that children ought not to drink any water until they are a year old; that milk is the natural nourishment for the child, and it should have nothing else. Another class of pediatricians and nurses insists on giving children enemas in order to produce regularity of bowel movement. This practice should be condemned. I do not agree in regard to the use of preparations of petroleum. They do not empty the bowel. After continuous use of these preparations you will find a condition very much like that found in the automobile engine when it needs cleaning, and until that condition is corrected you will have no normal bowel function. The improper use of enemas causes undue distention, producing atony of the bowel. The occasional use of petroleum is all right, but the habit must not be formed.

Dr. Nathan Rosewater, Cleveland: I was probably the first to prescribe liquid petrolatum internally, fully twenty years ago, and I have prescribed many barrels of it since. It is neither saponifiable nor absorbed through the bowel wall, nor oxidizable; does not maintain germ life, but it acts as a protective and lubricant to the inflamed or traumatized mucosa, while it softens the feces, thus reducing flatulence. I have prescribed it for infants 2 weeks old, while for the aged it is valuable for relaxed as well as for the spastic bowel. It is not a cathartic. It does not stimulate peristalsis, but by its lubricant action permits the normal force of bowel peristalis to exert itself with little or no spasm or colic. It is as useful as a protective in diarrheal as in constipated states. I agree with Dr. Murray as to water, but give it methodically, as to proper time and quantity, to secure the proper amount to flush the circulation, as well as the bowel. It acts more as a bowel flush if two, three or four glasses, hot, warm or cold, are given fully an hour or two before breakfast, when the stomach is surely empty. The bowels then move usually before or soon after breakfast, when the increased peristaltic waves during and following the meal assist in driving the stool forward. In the severe cases the patient is given two meals a day. Two glasses of water hourly or half hourly are given until eight or ten glasses are taken. This flushes the bowel thoroughly, softens and removes hard scybala, whereby mucous colitis and other conditions resulting from fecal stasis and pressure are controlled. For infants and children a sufficient amount of water fully two or three hours after each feeding flushes the bowel and produces softer and less irritating feces and prepares the stomach for the next meal.

Dr. William M. Beach, Pittsburgh: I am heartily in accord with Dr. Murray on the use of water, but I have been in the habit of adding a little salt to the water. The advantage in giving salt water is that one drink makes the patient want another, and in that way he gets the amount of fluid which he ought to have. I want to recommend iodin, administered internally, to restore functional activity of the glands of the colon. I suggested iodin, in half-grain doses, in my paper.

Relation of Cancer to Economic Condition.—In an investigation of the relation of incidence of and mortality from cancer in the period 1914 to 1916, conducted by the statistical department of the Metropolitan Life Insurance Company, interesting conclusions were arrived at concerning the relation of cancer to the economic condition of the victim. The insurance company's policy holders are divided into what are called ordinary, intermediate and industrial classes, the economic condition of the ordinary class being best, intermediate next, and the industrial third. The study led to the following conclusions: the current opinion that there is a positive relation between poverty and a low cancer rate is in all probability unfounded; the cancer rate increases as we go down in the economic scale; this is true of both sexes and by age period where sufficient data are available to form conclusions. It is said that medical selection has been considered in arriving at the foregoing conclusions. Medical selection against cancer is most effective in the ordinary department, and is limited to the earlier ages and to the earlier years of issue. In both ordinary and intermediate departments the effect of medical selection against cancer is limited to the first and perhaps the second year of issue.

MUNICIPAL HEALTH ADMINISTRATION

GENERAL CONSIDERATIONS *

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The total estimated population of continental United States in 1916 was 102,017,312. Of this population, 41,752,530 was urban, that is, was in communities having more than 8,000 inhabitants. There were 770 such municipalities.[1]

In other words, 40.9 per cent. of all our people have their health looked after (or not looked after, as the case may be) by 770 local health departments. In this single consideration, we see the great importance of municipal health administration and also, it would seem, its relative simplicity compared with the problem of looking after the health of the 59.1 per cent. of the rural population. The latter population, which is scattered over the rest of the country and reached only by a bewilderingly large number of local organizations, can at best be coordinated only by efficient state departments of health.

To discuss municipal health administration as a whole would be obviously unprofitable. Dealing with the cities by groups according to population, as has been done by the chairman, helps the situation. Unfortunately, the number of special papers in this symposium had to be limited to three. This necessitated the leaving out altogether of cities with more than 500,000 inhabitants and (more to be regretted) the making of groups with such wide limits of population as to render these groups far from homogeneous even in this single respect.

DISTRIBUTION OF URBAN POPULATION

Let us see how the urban population of the United States is distributed.

TABLE 1.—MUNICIPALITIES IN CONTINENTAL UNITED STATES, JULY 1, 1916

Group	Number in Group	Estimated Population
1,000,000 inhabitants and over	3	9,810,081
500,000 to 1,000,000 inhabitants	7	4,438,369
100,000 to 500,000 inhabitants	56	11,157,102
25,000 to 100,000 inhabitants	201	9,177,026
20,000 to 25,000 inhabitants	70	1,540,749
8,000 to 20,000 inhabitants	433	5,629,203
All over 8,000 inhabitants	770	41,752,530
Population continental U. S.	...	102,017,312

In Table 2 certain of the foregoing figures have been reduced to percentages. In this table only one group is made of places having from 20,000 to 100,000 inhabitants, so as to conform to the groups in the papers which are to follow.

TABLE 2.—PERCENTAGES OF POPULATION IN CITIES ABOVE 8,000, AND PERCENTAGES THAT EACH GROUP OF CITIES CONSTITUTES OF TOTAL NUMBER

Group	Percentage of Entire No.	Percentage of Population Urban	Percentage of Population Total
1,000,000 inhabitants and over	.4	23.5	9.6
500,000 to 1,000,000 inhabitants	.9	10.6	4.4
100,000 to 500,000 inhabitants	7.3	26.7	10.9
20,000 to 100,000 inhabitants	35.2	25.7	10.5
8,000 to 20,000 inhabitants	56.2	13.5	5.5
	100.0	100.0	40.9

Table 2 shows that two years ago (the latest year for which official estimates are available) 9.6 per cent. of the total population of continental United States (23.5 per cent. of the total urban population) was to be found in our three greatest cities, of more than 1,000,000, while 4.4 per cent. of the total population (10.6 per cent. of the urban population) was in the seven cities of between 500,000 and 1,000,000.

Thus our ten greatest cities, those with populations or more than half a million, contained 14.0 per cent. of our total population and 34.1 per cent. of our urban population.

These ten greatest cities, however, represent only 1.3 per cent. of the total number of municipalities in the United States. For this reason, and also because, in the carrying out of their complicated administrative functions, the health officials of these ten greatest cities would gain but little from any formal paper here presented, the section chairman and I were of the opinion that the small number of papers that could be read had better deal with health administration in cities of smaller size.

1. CITIES WITH POPULATION FROM 8,000 TO 20,000

The last of the groups given in the tables—that containing cities of from 8,000 to 20,000 inhabitants—is the most important of all from several points of view. It is important numerically, for it embraces 433 communities, or 56.2 per cent. of the 770.

Chiefly, however, does the importance of this group appeal to us because only very exceptionally will a community of less than 20,000 have a competent health officer. Yet 5,629,206 citizens of the United States live in communities of this size. Civic pride will ordinarily lead these places to have nominal boards of health of their own. Certainly they should have proper health protection in one form or another, since they have their own peculiar health problems quite distinct from those of the surrounding country. Hence it is that communities of this size present one of the most difficult problems in the entire field of public health administration.

In the United States, modern public health work had its first development in certain of our large cities. Next came efficient state health departments. More recently a number of cities of less imposing rank have begun to do excellent public health work. Still more recently we have found much time and attention devoted—and very properly so—to the subject of rural sanitation.

In consequence of the developments just referred to, it may safely be asserted that we have today in this country a far more satisfactory mass of information on public health administration for states and for cities of, say, over 25,000 inhabitants, on the one hand, and for rural sections, on the other hand, than we have for the intermediate communities, namely, those of less than 25,000 and particularly those of less than 10,000 or 15,000.

In various ways the attempt has been made to deal with the problem of health administration in these small communities. Inclusion as part of a really efficient county health department, special arrangements with the state department of health, the combination of several favorably located small communities under a single administration of their health affairs which is better than any one of them could individually afford—these are among the measures that have worked well in special cases.

* Read before the Section on Preventive Medicine and Public Health at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. For all statistical data in this paper, I am indebted to Mr. C. S. Sloane, Geographer, United States Bureau of the Census.

The very difficulties of the small cities made it also difficult to find just the man to discuss their problems from the standpoint of actual experience. So we are fortunate in getting Dr. Armstrong to handle this subject. The Framingham situation is, of course, most exceptional. But Dr. Armstrong himself realizes this fully and may be relied on not to present the Framingham work as a thing which may be followed—certainly not as yet—in the ordinary small city.

2. CITIES WITH POPULATION FROM 20,000 TO 100,000

The group of cities containing from 20,000 to 100,000 inhabitants embraces 271 communities, or 35.2 per cent. of all the cities in the United States. Their aggregate population is 10,717,775, which means that 10.5 per cent. of the people of the United States and 25.7 per cent. of the urban population live in cities of this group.

In discussing health administration for this group of cities, Dr. Furstman has a difficult task, since, more than any other group as arranged for the purposes of this symposium, it embraces cities of widely different requirements at the two ends of the scale. It is, for example, open to question whether a city whose population slightly exceeds 20,000 should, as the practice of public health now stands, have a whole-time health officer. On the other hand, there can be no question that every city, long before its population reaches the 100,000 mark, should have a health officer who not only devotes his whole time to his public duties, but who is trained in sanitary science and who possesses considerable executive ability.

In many other particulars there is a wide difference between the requirements and the methods to be followed in the rather mixed class of cities which have been included in this single group. This difficulty will give Dr. Furstman full opportunity to exercise that ability which he has shown as health commissioner of La Crosse.

3. CITIES WITH POPULATION FROM 100,000 TO 500,000

The group of cities that have populations between 100,000 and 500,000 is numerically the smallest that will be considered in the papers of this symposium. It includes fifty-six municipalities, or only 7.3 per cent. of the 770. The aggregate population, on the other hand, is the greatest of all, being 11,157,102, which is 10.9 per cent. of the total population of continental United States and 26.7 per cent. of its urban population.

In spite of the fact that the margin of 400,000 between the upper and lower limit of population in this group is by far the largest that is found in any of the three groups covered by our papers, nevertheless this group is the most homogeneous of the three, by reason of the fundamental fact that every city in the group should have at the head of its department of health an officer equally expert in sanitary science and in the handling of men. After this basic requirement is satisfied, all else becomes merely a question of giving to the right man abundant financial and moral support and a free hand in the development of a department of health which, however much he may be helped by study of what has been done elsewhere, he must work out to suit the peculiar circumstances and needs of his own community.

Cities in this group should each have a real department of health, not merely a board of health with a chief executive officer who is required to be a sanitary jack of all trades, a condition almost necessary in smaller communities. With increasing insistence, as we go from the lower to the upper limit of population in this group of cities, the health officer should be relieved of detail work by surrounding himself with able men in each of the department's activities.

Health administration in this group of cities will be dealt with by Dr. Landis, whose work and accomplishments as health officer of Cincinnati entitle him to speak with real authority.

In the arrangement of this symposium on municipal health administration, we have sought to make it of a practical nature, in the hope that the papers that follow may be of real help to those who are now in control of city health departments or who may later be called to this important field of work.

HEALTH ADMINISTRATION IN CITIES OF LESS THAN TWENTY THOUSAND POPULATION *

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FRAMINGHAM, MASS.

The writer is not and never has been a health officer in charge of routine health administrative work in a small city. On the other hand, as executive officer for the Framingham Community Health and Tuberculosis Demonstration, it has been possible to consider the small city health problems, with the more or less unique advantages of the laboratory worker having for his field an urban community as a social laboratory. It is true that, with adequate funds for health work along various lines available in the demonstration budget, it may be considered that conditions are far from typical. Further, Framingham as a field for experience is under New England town government and in that way differs from similar communities in other parts of the United States in its form of official administration.

Because of the advantages, as well as the limitations inherent in this experience background, no attempt will be made herein to give an historical résumé of small city health conditions. An effort will be made to analyze with some thoroughness the health needs of communities of this kind and the author will endeavor, primarily on the basis of the Framingham experience, to suggest methods for meeting these needs.

While the object of this paper is to discuss in general the health needs of cities of this size, and not to describe in particular the Framingham activities, it may be wise to state that the experience in Framingham is being acquired in a reasonably average American community. Framingham now has a population of 18,000 people, of which more than 6,500 are directly engaged in industry. More than 27 per cent. are foreign born, and in the last five years the town has experienced a growth in population of 22 per cent. The industries are varied, and the social, racial, and economic conditions are typical of a normal industrial town.

* Read before the Section on Preventive Medicine and Public Health at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

HEALTH STATISTICS OF SMALL CITIES

As a justification for giving consideration to the health needs of the smaller cities, it may be pointed out that, of the entire population of the United States, July 1, 1916, 7,629,128 individuals were resident in communities having a population of more than 8,000 and less than 25,000. A further analysis of the 1915 census shows that for the registration area, there were at that time 262 cities with a population of more than 10,000 and less than 25,000. The population, the total number of deaths, and the general death rate for special groups of these cities are indicated in Table 1.

TABLE 1.—POPULATION AND GENERAL DEATH RATE FOR TWO HUNDRED AND SIXTY-TWO CITIES IN REGISTRATION AREA BETWEEN TEN THOUSAND AND TWENTY-FIVE THOUSAND

City Groups	Population	Total Deaths	General Death Rate
All cities	4,251,823	60,104	14.1
New England cities	851,136	11,589	13.6
Massachusetts cities	449,958	5,582	12.4
N. E. without Mass. cities	401,178	6,007	15.0
All cities outside New England	3,400,687	48,515	14.3

From this table it will be noted that cities of this class have a reasonably good general death rate (14.1). Massachusetts cities have considerably better than the average rate (12.4), while New England without Massachusetts has slightly more than the average (15.0). It may be interesting to point out that in 1915, Framingham, with 13,815 people and 242 deaths (residents and nonresidents, without stillbirths) had a general death rate of 17.5. This rate corrected for nonresidents was for that year 13.5. For the decade from 1906 to 1916, the general death rate including nonresidents was 15.3 for Framingham. In 1917 this rate was 15.1 (11.1 when nonresidents are excluded).

Another reasonably reliable criterion of health conditions in any community is the situation in regard to tuberculosis mortality. Consequently, an effort has been made on a similar scale to ascertain the mortality of tuberculosis for cities of the smaller size. The 1915 census has been used as a basis here also, and the rates cover all forms of tuberculosis.

TABLE 2.—DEATH RATES FROM TUBERCULOSIS IN ONE HUNDRED AND SEVEN TOWNS

Rates per Hundred Thousand	Cities Falling in Corresponding Rate Class
31 to 60	10
61 to 90	23
91 to 120	22
121 to 150	15
151 to 180	12
181 to 210	12
211 to 310	11
311 to 410	2

For the registration area as a whole in 1915, with a population of 67,336,992 (67 per cent. of the total population of the United States), there were 98,194 deaths certified as tuberculosis, giving a death rate of 145.8 per hundred thousand. In comparing conditions in smaller cities with the registration area as a whole, I have selected five towns in each registration state with a population of more than 10,000 and less than 25,000, except when the states had fewer than five cities of this size. Institution towns, with corresponding above average rates have not been included. This selection gave 107 towns in all, twenty-five of which were in New England. The distribution of all these towns according to tuberculosis rates is set forth in Table 2.

It will be noted that the majority of these cities show tuberculosis rates of less than the average for the registration area. For the most part, cities with higher rates are from southern territories with large colored populations.

Tuberculosis rates in the twenty-five New England cities are distributed according to the figures set forth in Table 3.

TABLE 3.—TUBERCULOSIS RATES IN TWENTY-FIVE NEW ENGLAND CITIES

Rates per Hundred Thousand	Cities Falling in Corresponding Rate Class
51 to 80	6
81 to 110	7
111 to 140	1
141 to 170	6
171 to 200	3
201 to 250	2

It will be noted that approximately half these cities fall below the registration area rate. For any single town, the rates show wide fluctuations yearly, because of the small population involved. In 1915, for instance, Framingham had an exceptionally low rate, 65.1. For the decade 1906 to 1916, the average rate was 99. On the other hand, a study of the reliability of death certification in Framingham indicated that the more probable tuberculosis mortality would be represented by a rate 22 per cent. more than the stated rate. For Framingham, this would give for the decade a rate of 121.5 per hundred thousand, and for the year 1915 a rate of 90.7 per hundred thousand. On the other hand, it is safe to assume that approximately this same error would be found in other communities.

ROUTINE HEALTH PROBLEMS OF CITIES

To return to the direct consideration of the small city health problems, it is obvious that in many respects the factors involved are similar to those met with in the larger municipalities. The routine health problems which cities of all sizes have in common may be briefly indicated as follows:

1. General sanitation. Those responsible for health administration have to deal with matters of general sanitation, such as water supply, milk and food control, sewage disposal, mosquito and fly suppression, regulation of stables, privies, wells, etc.

2. Communicable disease. The health officer is concerned with the control of contagious disease, the suppression of typhoid fever, tuberculosis, etc., and the provision of laboratory facilities for the carrying out of diagnostic and therapeutic measures.

3. Infant life. The provisions for adequate supervisory and educational activities along prenatal, obstetric, and postnatal lines, reaching into the preschool period are essential in the care of infants, and include nursing, clinics and social efforts.

4. School life. The needs of small and large towns alike involve the provision of medical, clinic, and nursing service among schoolchildren.

5. Industrial life. The industrial workers everywhere, regardless of community size, should have provided for them, from public or private resources, adequate medical, nursing, dispensary, first aid, and social service facilities.

6. The middle age. The problems of adult hygiene and of the control of degenerative diseases are the same everywhere, and may be met in small cities as well as in larger communities by the institution of hygienic, educational, and life extension procedures.

DIFFERENCES BETWEEN LARGE AND SMALL COMMUNITIES

Of greater interest than the similarity in problems are the differences that characterize the smaller communities in regard to their hygienic problems. In addition to specific and obvious differences, significant, yet intangible, factors of personality enter into the small town problem, making health administration there sometimes more direct and yet again more difficult.

1. In the first place, the relation of the health administrator to the practicing physician is of necessity more intimate and direct. His contacts are more frequent and more personal. A larger percentage of the population receiving medical care is in the hands of private physicians. Dispensary with outpatient service is less developed, the practice of medicine is less depersonalized. The official town agent, whether tuberculosis nurse or infant welfare nurse, etc., will find herself more frequently dealing with the family physician, and for that reason adaptability, tact, and tolerance are, if anything, more necessary in the smaller community than in the larger.

2. The development of group, "wholesale," or dispensary therapeutic services is less apt to be found in the smaller community and more difficult to establish, for medical as well as for economic reasons.

3. The atmosphere of intimacy which characterizes the relationship between the health administrator and the average citizen must seriously modify the type of educational work that can be carried on in the small community. The health officer, even in addressing the foreign-born and foreign-speaking people in his community, is appealing, not to an impersonal mass of humanity, but to his neighbors whom he meets daily on the street, in the stores, at church, at town meetings, etc.

4. Contrary to what one at first thought might suppose, an inferior degree of cohesion is characteristic of the smaller towns, particularly the New England towns, which more nearly coincide with townships in other sections of the country, and which are spread out over wider territories, frequently being composed of numerous villages, each with a greater or lesser degree of autonomy. Separate neighborhoods, sometimes of special races, are frequently isolated; hygienic conditions in regard to fundamental necessities, such as water supply and sewage disposal, frequently vary tremendously within the limits of the municipality; factories are of diverse types; the milk supply is most heterogeneous, etc.

5. In communities with a relatively small population, age, sex, and race factors may vary radically from average conditions found in larger and more representative units.

6. Many towns, particularly in New England, comprise in their limits a fringe of rural life, presenting special problems of farm hygiene.

7. Hospital facilities, of course, vary for each community, though presumably for most small towns they are less adequate, not only in regard to beds, but also in regard to special and oftentimes even routine medical service, than they are in the larger cities. On the other hand, a smaller community which is the trading and population center for a large semi-urban or rural district, may not only have excellent hospital facilities, but because it is the hospital center for a large population outside the community's own limits, it may have its morbidity and mortality rates seriously affected, unless corrections are made for nonresident illnesses and deaths.

8. All American communities are intolerant of so-called expert services. This is one of the fundamental defects which American democracy must remedy. The man specially trained for any piece of work is still ill-received by the average American community, and has not successfully been made a part of the community life. The recent vicious political attack on the health administration in New York City has met with indifference, if not support, by the rank and file of New York City citizens, largely because the municipality is reacting against the specialist service preeminently characteristic of the previous administration. This is true, of course, along other lines than health. Further, the same difficulty is, if anything, augmented in the smaller American community, for there more than in the larger cities, the citizens, expressing themselves through town meeting, or other local municipal organization, indulge themselves in a belief in the myth of early Grecian democracy, that each individual, be he only a "free man," is capable of governing in any capacity whatsoever, without regard to special training or modern technical requirements.

HEALTH MACHINERY

In discussing the machinery which ought to be provided in order to meet effectively the health needs of the smaller community, no attention will be paid to the cooperative plans that have been developed where small towns adjacent to one another have administered their health work in common. It is assumed that consideration needs to be given to an isolated or at least an independent autonomous community needing and capable of supporting an adequate health machinery of its own. It is the intention of the writer to give primary consideration to routine health machinery, first from the point of view of public provision, and second, through the machinery which private agencies in the normal community might, for the time at least, be expected to provide. Further, there will be discussed certain special health measures which are being experimented with in Framingham, and which, if demonstrated to be a success, may eventually be incorporated, in this community at least, into the routine machinery, and which may subsequently, as a result of this demonstration, be considered routine necessities.

ROUTINE HEALTH MACHINERY

A. Public Provision: 1. Board of health work. It is safe to assume that the health work of a community of 20,000 cannot be administered effectively on a part-time basis. The needs of such a community, as outlined earlier, indicate that full-time service must be required. Further, the Framingham experience has demonstrated that even a conservative New England community may be encouraged to appropriate sufficient funds to make full-time, reasonably adequate service possible. In order to meet the medical, sanitary, laboratory, nursing, and office necessities of a community of this size, the following staff is required: a medical officer of health, a sanitarian (laboratory worker), a tuberculosis nurse, an infant welfare nurse, and a secretary (stenographer). Further equipment includes two or more infant welfare clinics and a small laboratory.

2. School health work. In some communities the school health work may be administered by the board of health, and in others by the school committee. It is probable that an economy in administration will result in having the school health work handled by the board of health staff. In either case, however, the following staff is necessary for a community of this size: one full-time physician, two school nurses, a part-time dentist, and a physical director. Additional equipment will include a dental clinic, an eye refraction clinic, a nose and throat clinic, several open-air classes, provision for school lunches, etc.

B. Private Provision: 1. Hospital facilities. In addition to whatever routine private hospital facilities the community may possess, arrangements should be made for the local isolation of communicable disease, an outpatient service on a pay, self-supporting basis, a sun room and perhaps other facilities for the nonpulmonary cases of tuberculosis, district nursing work, etc. There are practical advantages in having the local district nursing work administered from the hospital, particularly if the hospital operates a nurses' training school; for the nurses in training, under adequate supervision, may be used in the district work.

2. Industrial medical service. Full-time medical, nursing, clinic, and first-aid facilities should be provided at the expense of the industries, for convenient units of the industrial population. This work in the industries may for the most part be largely diagnostic, the therapeutic service being provided by private physicians, and by the outpatient pay clinic mentioned above. Single industries are not large enough to afford full-time service, medical and nursing provision may be made on a joint basis, several industries, preferably similar in type, combining to purchase this service.

3. Private civic provision. Through the creation of a community-wide civic association, essential health activities may be established on a basis of private resources. This provision should meet the needs of recreation, relief, public health education, social organization for health, athletics, and life extension work. The staff necessary for this work will include a social worker, an athletic director, a stenographer, and possibly a special investigator.

SPECIAL HEALTH MACHINERY

In addition to these routine activities, certain experimental activities have been created or are being created in the Framingham "health laboratory." Most of the services to be discussed under this head are distinctly experimental in character, as their usefulness and self-supporting qualities must be established before their recommendation for adoption to the community will be considered as justified. If it can be demonstrated that they meet recognized community needs, some of them would eventually become a part of the town's official health work; others would be taken up by private agencies. These services might be briefly discussed as follows:

1. Industrial Medical Service for the Smaller Industries: It is hoped that a few of the smaller industries in Framingham, not yet provided with full-time medical and nursing service, may be persuaded to cooperate with each other in the purchase of this service. If sufficient appropriations are made to cover the salary of full-time physicians and nurses, there is no reason why this work might not eventually be absorbed by the community and supervised by the local health authorities. Presumably, also, the similar services already established in the larger industries will be coordinated with the service to be established in the smaller plants, and will be supervised by the same central authority, at no expense to the town itself.

2. A Central Milk Pasteurization Plant: In order to encourage the pasteurization of milk, and to make this measure possible for the smaller producers in this community, a central plant for the collection, pasteurization, and distribution of milk is proposed. Once established, this also should be operated on a self-supporting basis, and might be supervised by the local health authorities.

3. An Outpatient Medical Service: With the diagnostic work which is now being carried out in the schools, factories, infant clinics, and elsewhere, the need of facilities for treatment is emphasized. On the other hand, it is believed that these facilities should be established on a self-supporting basis, local medical service should be employed, and adequate compensation should be offered to the physicians engaged for this work. Presumably this work should be carried out in cooperation with the local hospitals, though its coordination and supervision might be directly under the local medical officer of health.

4. An Expert Medical Consultation Service: This service, already in operation for more than a year in Framingham under the auspices of the demonstration, has proved its worth, not only in the detection of tuberculosis, but also in the diagnosis of other conditions. Such a service would seem a necessity for any community, regardless of size, but particularly for smaller communities, where expert facilities are more frequently lacking. There is no reason why this service should not eventually be, in part at least, self-supporting, and its ultimate sponsors might be the local hospitals, the local health authorities, or the local medical organization.

5. Medical Examination or Life Extension Work: Already in Framingham, more than 5,000, or nearly one third of the population, have been examined, largely by physicians from out of town. The citizens are in increasing numbers calling on the local physicians for routine health examination work. This practice of annual medical inspection for the adult population outside the schools and factories should be extended and placed, if possible, on a permanent basis. Its ultimate supervision might be located in the official or private agencies mentioned previously.

6. Community Houses: Already there have been established, under the auspices of the school committee and the local industries, two community houses in Framingham. The programs for these civic centers include a large amount of health work along educational and organization lines. These agencies, while not directly self-supporting, are already established under local auspices and should perhaps be extended into other neighborhoods of the community.

7. A Summer Camp for Children: Such a camp, providing fresh air, recreation, food, and educational supervision for many children of the school and preschool age in the community, should become a permanent factor in the hygienic life of the town. While it cannot perhaps be made self-supporting, the per capita cost is small, particularly if operated as a day camp, and the results would justify public or private agencies in devoting sufficient funds to this work.

8. Neighborhood Health Committees: These have already been established in all parts of Framingham, and the expense involved in the maintenance of this intimate, neighborhood, social organization for disease detection and health promotion is extremely slight, other than the necessary supervision, which might eventually be given by a full-time worker employed by the local civic organization.

COST OF COMMUNITY HEALTH ORGANIZATION

The cost of an adequate community organization for health, as outlined in the foregoing discussion is, of course, the determining factor in its practicability. At the present time communities of this size are spending on an average of not more than 20 or 30 cents per capita on health work, from both private and public sources. Framingham, when chosen for the demonstration, was spending about 40 cents per capita. It is now spending from the public funds approximately 82 cents per capita, which compares very favorably with any community in the United States, regardless of size. Framingham is doing this without, in any way, being conscious of undue public financial burden. In addition, private agencies, including industries, are now spending nearly $1 per capita on medical and health service.

In considering the cost of adequate health machinery to the average community, attention will be paid only to the routine procedures previously outlined. These will be considered in groups corresponding to the services previously outlined.

A. *Expenditures for Public Facilities.*—1. The board of health. An adequate budget for a local board of health should total approximately $12,000, distributed as follows: medical officer of health, $2,500; sanitarian, $1,600; tuberculosis and infant welfare nurses, $2,400; secretary, $800; miscellaneous (including communicable disease work, dispensary work, laboratory work, transportation, office maintenance, etc.), $4,700.

2. The school health work. An adequate school budget ought not to exceed $6,000, distributed as follows: full-time physician, $2,500; school nurses, $2,200; part-time dentist, $500; clinic expense, $800.

This would give from public funds a total of $18,000, or approximately $1 per capita. In most communities a considerable saving, as far as public health expenditures are concerned, could be realized by the elimination from the health budget of certain items having no bearing on the morbidity or mortality rates. In Framingham, for instance, the board of health expenditures now include items totaling more than $1,500, made up approximately as follows: garbage collection, $625; plumbing inspector, $600; removal of dead animals, $30; slaughtering, $300. Practically all these activities might preferably be met by appropriations in other departments, thereby decreasing the burden which health work now carries, though obviously not decreasing the total town appropriations.

B. *Expenditure for Private Health Activities.*—1. In order to provide medical, nursing and other health machinery for the industrial workers in a typical manufacturing community of the size under consideration, it is estimated, on a basis of the Framingham experience, that the annual expenditures will amount approximately to $18,000 a year. This will provide at least three full-time physicians, several nurses, and clinic maintenance.

2. Civic activities. An annual budget of $4,000 for a civic association might be distributed as follows: secretary and investigator, $1,500; physical director, $1,200; stenographer, $800; miscellaneous, $500. On the other hand, many of the activities which might be undertaken, such as gymnasium class work, will prove in part self-supporting.

The entire expenditure necessary to meet the private health needs, including the needs of industry, ought not to amount to more than $20,000 to $22,000, or a little more than $1 per capita. On this basis, the entire community health expenditures from public and private sources would amount approximately to $2 per capita.

PRACTICAL RESULTS IN FRAMINGHAM

It is hoped that the unusual opportunities and resources now available from outside sources in Framingham will throw light on the value, not only of routine procedures, but of the special measures there being tried out. On a basis of the work there, many activities falling both in the routine and special categories may eventually be discarded or permanently adopted. Of course, in Framingham, the main object of the work is to discover and eliminate tuberculosis. On the other hand, as has been indicated in the foregoing paper, every opportunity is being seized to stimulate action along allied lines, and to develop a community-wide machinery for detection of disease and creation of health.

The work in Framingham was initiated shortly before Jan. 1, 1917, and was in part well under way during a fraction of that year. A summary of the mortality findings for 1917 in Framingham may be of interest, as indicating the conditions under which the demonstration was working, and the statistical basis with which its subsequent results will have to be compared. The situation in regard to mortality, as indicated for 1917, is not offered as a manifestation of the effect of the demonstration program. All that can be said at the present time is that it indicates a tendency, which, being in the direction of lower rates, must be maintained and if possible accelerated, if the measures now being tested are to prove of worth.

In Framingham, during the decade from 1906 to 1916, the general death rate including nonresidents was 15.3 per thousand. In 1917 it was 15.1. When nonresidents are excluded, the general death rate for this decade was 13.65, and for 1917, it was 11.1. The tuberculosis death rate per hundred thousand, corrected for nonresidents and death certification errors, was 121.5 for the preceding decade, and 99.0 for 1917. While infant mortality rates for the decade are unreliable, because of the inadequate birth registration, the infant death rate per thousand born in 1916 was 81, and for 1917, 73.

Thus far in Framingham, as has been adequately illustrated in the preceding discussion, the community, both publicly and privately, has been most generous in its support and in its endeavor to meet its own health obligations. The committee in charge of the work in Framingham are encouraged to believe that communities elsewhere, having this example, will endeavor to provide measures for health. Framingham is attempting to set these standards. Thus the nation's municipal health experimental laboratory may also become the nation's health town.

PUBLIC HEALTH ADMINISTRATION IN CITIES OF FROM TWENTY THOUSAND TO ONE HUNDRED THOUSAND *

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From the title of this paper you will undoubtedly realize that it is quite difficult to lay out a plan of health work that will be suitable for all. The question thus arises, why should this task be difficult? Should not health work be the same in a city of 20,000 as it is in a city of 100,000 or more, only somewhat modified to meet local conditions?

You have undoubtedly tried to compare the work of various health departments from annual reports issued by them and found it next to impossible to do so. The greatest single need is probably standardization. In other words, there appears to be no standard of measurement. The public health official realizes that such standardization will promote a unification of thought and action, which will make it possible for him to devise ways and means of fairly competing in the field of public health endeavor.

There is no question that every one engaged in public health work is trying to do what he thinks will accomplish the best results. But is he doing it? Have we as health officers, in the administration of our duties, kept pace with the advancement in public health work? Have we seen to it that the laws relative to public health work have been changed to conform with modern ideas, or are most of us still endeavoring to work under the ancient laws that were passed when contagious diseases were looked on as something mysterious?

Are we as health officers getting the best results for the money that is being spent on health work? It is my opinion that most of us are not. And why not? For the simple reason that we are not all working along the same lines. There is no definite standard laid out for health workers to follow.

In a questionnaire sent out to a number of cities ranging in size from 20,000 to 100,000, I found that considerable attention is spent, and money as well, on garbage collection and sanitary inspection, the latter including the inspection of alleys, outhouses, yards and foods, but little or no money is spent on laboratory facilities, medical inspection of schools and infant welfare work. As a matter of fact, most of the work done in the smaller cities consists in quarantining and fumigating for contagious diseases, in looking up nuisances and collecting garbage. The last branch of the work receives the bulk of the appropriation.

If the merchant or manufacturer hopes to succeed against competition, he must by good accounting learn which goods yield the highest profit. So the health officer, if he wishes his department to have its due share of the municipal budget, must learn which line of work yields the most for the sum expended. He should seek greater financial assistance for the most effective work and should eliminate, cut down, or at least not emphasize, those functions which yield little return for the money. It is difficult to change the direction of sanitary endeavor, but certainly it is our duty at frequent intervals to take account of stock and try thereby to discover the most profitable lines. It is also our duty clearly to set forth our conclusions, even though it may not be easy to convert the public, and particularly town and city councils, to new points of view.

ADVANCEMENT IN PUBLIC HEALTH WORK

There has been considerable advancement in public health work within the last fifteen years, and as we learn more about the causes of the various diseases, our methods of control change.

Years ago when a typhoid fever epidemic presented itself in a community, general orders would be issued to whitewash basements, yards would be cleaned, plumbing would be overhauled, etc., but the epidemic continued just the same because little was then known of the four great public routes of infection, namely, water, milk, food and flies, and what is still more important, carriers and missed cases.

When diphtheria broke out in school, the school would be closed for a few days, the building would be fumigated and the children would be permitted to return to school, but the diphtheria continued. Why? Because no laboratory facilities were at hand to detect the carriers.

In the past we have paid altogether too much attention to the environment and too little to the individual in the spread of contagious diseases. Most men engaged in public health work today are of the belief that contagious diseases are spread by the fresh discharges of the individual and that fomites play no part in the spread unless they are infected with fresh discharges. If this theory is correct, then we must educate the public to understand that fact. The sooner this is done, the sooner will men engaged in public health work be able to spend their appropriations for the more important phases of health work and thereby accomplish the most for the money expended.

DUTIES OF A HEALTH DEPARTMENT

In enumerating the administrative work of a health department, I am going to emphasize what seems the most important duties for the department to undertake.

First, the head of the health department should be a physician, who is especially trained in sanitation and hygiene. It should be his duty to teach the public about the preservation of health and the prevention of disease. The medical graduate of the past has not had this training, because of the limited amount of instruction in sanitation and hygiene that the schools then offered.

In the past the study of medicine has based its teachings on the old principle of the cure of disease, and still continues to do so; while the new profession of medicine, the one we hope for, will certainly have to recast some of the methods of the old medicine, so that it will emphasize the prevention of disease.

If the head of the department is fully qualified to undertake the work, he should be given full authority to choose his subordinates and lay out the work, taking up such activities as he knows will bring the best results for the money available. It is absolutely essential that the department be divorced from politics and that the terms of office of the head be made secure. In La Crosse a board consisting of three members is appointed by the mayor, each member

* Read before the Section on Preventive Medicine and Public Health at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

serving three years. This board has full control of the health department and is out of politics. The head of the department is appointed by this board and is responsible to them only.

The following activities should be undertaken: (1) control of contagious diseases; (2) medical inspection of schools; (3) infant welfare work; (4) laboratory diagnosis; (5) sanitation; (6) vital statistics, and (7) publicity and education.

CONTROL OF COMMUNICABLE DISEASES

The control of communicable diseases is one of the most important factors in public health work. In order to establish control, the health department must have the full cooperation of the local physicians, for without the knowledge of the existence of these diseases the department would be just as useless as the fire department would be without the knowledge of where the fire was. A thorough investigation of epidemics as well as sporadic cases must be instituted, in order that we may get at the source of the trouble and check the epidemic before it goes too far.

The epidemiologist must always keep in mind the four great public routes of infection, namely, water, milk, food and flies, and since epidemics are the exception to the rule, in the handling of sporadic cases, which he will be confronted with most of the time, he must never lose sight of the mild, the missed and the carrier cases.

Antitoxin and vaccine should be furnished free to all by the department and people should be urged to make use of them. A program should be instituted for the prevention of venereal diseases and tuberculosis.

In the treatment of tuberculosis, the use of the county sanatorium has been and is being urged all over the country.

There is no doubt that tuberculosis sanatoriums do considerable good but I question if we are getting enough good out of the money we are spending for them.

I am firmly of the opinion that if the same amount of money were used in the employment of visiting nurses, who would see tuberculous patients at home and educate them how to care for themselves properly, a great deal more would be accomplished, especially since we, in most instances, get only the patients with fairly advanced cases into the institutions. The nurses, while doing their work in the homes, would be in a position to watch all other members in the family and thereby detect the early cases. If we are going to build institutions for the prevention of tuberculosis let us build preventoriums to take care of the overwhelming number of patients who have been exposed by those that are sent to sanatoriums and really constitute only a small percentage of the cases.

The question in my mind is, are we really handling tuberculosis properly with the county institution and are we progressing in the control of this disease as spent and yields big returns.

MEDICAL INSPECTION OF SCHOOLS

Medical inspection of schools is no longer in the experimental stage. We know positively that any amount of money spent along that direction is well spent and yields big returns.

Medical inspection of schools should include not only the control of contagious diseases but also the routine inspection for physical defects, which is far more important, provided the children showing defects are followed up and the defects corrected.

In this great work, the visiting nurse makes her appearance and I wish to say that without her 90 per cent. of the value of school inspection would be lost. It is through the nurse's efforts in the home that we are able to get the results we are getting in school work. Medical inspection of schools should be under the supervision of the health department, rather than under the board of education. School boards have no authority, by precedence or by law, as have health departments, to follow back to its home outside the schools the ramification of the infection, of which the infected child in the school constitutes but one link. School boards also have no authority over nor information about the large number of children who are not of school age, nor concerning any adult, except those directly connected with the schools.

INFANT WELFARE WORK

This departmental activity surely needs no introduction. It has done and is doing more in health department work than any other activity. I am making this positive assertion because it is one of the activities in health work which, as we know by actual figures, is getting results.

Here again the nurse steps in, and without her we should be at sea. It was thought that clean milk and milk stations were the essential factors in reducing the infant death rate, but we really didn't begin to get results until the nurse was installed.

In this great work we must not lose sight of prenatal work nor of supervision of midwives and boarding-houses for infants.

In spite of the fact that every city undertaking infant welfare work has accomplished results in direct proportion to the amount of money it was willing to spend, it is surprising that many cities are spending considerable money for garbage collection, but not a dollar for this important activity.

LABORATORY DIAGNOSIS

A health department without laboratory facilities is about as efficient as a fire department would be without modern fire apparatus or an efficient water supply. A city, no matter how small, should have laboratory facilities, in order that the physician may be aided in making correct diagnosis and in that way be instrumental in lessening the number of contagious diseases. Examinations should be made for tuberculosis, typhoid, diphtheria and venereal diseases, and water and milk should be examined. The physicians should be encouraged at all times to make use of the laboratory. A laboratory in a community encourages more scientific work among physicians and consequently raises the standard in the community.

SANITATION

I am very sorry to say that sanitation as a phase of health work has been the most popular and one that is probably bringing us the least results for the money spent. With the old ideas as to the spread of contagious diseases we can readily see why this has been so popular. But since most of us know better, why don't we change our methods? Most of us know that we are not saving any lives through the removal of garbage and that this activity should be

taken out of health work, but we still continue to attend to it because the public demands that we take care of it. A great deal of money is being spent on food inspection, while little or nothing is being done to see whether the people that are handling the food are suffering from tuberculosis, venereal disease or other contagious diseases.

I do not want to infer that there is no good accomplished from proper sanitation, but I do think we have been giving altogether too much credit to this work. We all appreciate that it is esssential to have a good water supply and that we must look after the milk supply, and in connection with the latter I wish to say that a great deal more time should be given the product on the dairy and less time spent in the chemical analysis of it.

Sanitation, as far as human excreta is concerned, is very essential and obtains results, therefore it is necessary that we have proper sewage disposal, and in smaller communities where there are no public sewers, especial attention should be given privies, because they are a direct menace to health. If they must remain, because of lack of sewers, they should be made as clean and flyless as possible.

VITAL STATISTICS

Without vital statistics, health departments would be at a loss to measure the progress made. Vital statistics are just as important to a health department as is the most careful accounting maintained by our most successful business enterprises. It is the bookkeeping of the health department, and unless the statistics are accurately kept, they are of little or no value to us at all.

PUBLICITY AND EDUCATION

It is within the scope of publicity and education that the success of public health work lies. We have been progressing rapidly in public health work, but we have failed to keep the public informed of our progress. It was not until the public health nurse was added to the department that we were able to get the results we are getting in the reduction of infant mortality, and why? Because she went into the home, gained the confidence of the mother and then educated her in the proper handling, care and feeding of her baby. The public must be educated in health work. They must be shown that it is no longer a mystery. The facts must be put before them, and I am satisfied if this is done that health departments will not have the trouble they now have in getting sufficient appropriations for carrying on this important work.

How are we going to educate the public? By means of publicity, motion pictures, talks, little mother's classes and, most important of all, by means of the school teacher and the visiting nurse. The addition to the department of a paid publicity agent, who is well versed in health matters, and who could place the subject before the public so that the ordinary layman could understand it, would be money well spent.

CONCLUSION

I wish to bring out these facts:

1. We are badly in need of proper standardization of public health work and it is my belief that the best way to go about this is through the creation of a national department of health that would set a uniform standard of work for all health workers.

2. We must take an accounting of the work we are doing to see if we are getting enough results for the money we are spending and to see if we are spending it in the right direction.

3. If the health department is to get the best results, it must be divorced from politics.

4. If the public is properly educated in public health work and is kept informed as to the progress we are making, there will be little difficulty in our obtaining adequate appropriations for the work; and there will be less difficulty in health departments divorcing themselves from duties they know are not bringing results.

5. If the several branches enumerated cannot be taken up individually, I should suggest the following combinations: (1) control of contagious diseases, medical inspection and nursing; (2) food inspection and laboratory diagnosis; (3) vital statistics, and (4) sanitation.

6. Appropriations, instead of being made in lump sums, should be divided and the amount for each activity specified.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. LEVY, ARMSTRONG AND FURSTMAN

DR. JOHN DILL ROBERTSON, Chicago, said that there is not much difference between the health administration of a small community and a large one, because the latter is made up of a group of small communities. The cost per capita depends entirely on what is done. Is antitoxin given free to schoolchildren in case of a diphtheria epidemic? Is every case to be hospitalized? If so, then a contagious disease hospital is a necessity. By doing these things, he said, $5 per capita a year is not too much.

The health department is in reality a disease department. Money has been spent in fighting disease, rather than in preventing it. In Chicago about fifty cases of venereal diseases are reported each day. A venereal disease hospital has been opened to take care of that situation. About 2 to 4 per cent. of Chicago's population is tuberculous. A million a year, or 40 cents per capita, is spent in Chicago for tuberculosis work.

MR. EUGENE R. KELLEY, Boston, said that we are apt to regard county sanatoriums and hospitals as if they were addenda, whereas they are supplements. We cannot do without one or the other. Massachusetts, he said, has come nearer to supplying proper supervision through the public health nurse to all classes of population than any other city. A mandatory law requires that each community of 10,000 or more inhabitants should maintain a tuberculosis dispensary. The main part of the dispensary machinery should be the visiting nurse. The affected communities cover 85 per cent. of the whole population. The state is divided into eight health districts. One health nurse and one doctor correlate the work of the dispensary and look after the regular cases. The follow-up work of the State Sanatorium for Consumptives is also being done by these workers. About ninety of the Visiting Nurses' Association follow up tuberculous cases in addition to the bed tuberculous. The biggest obstacle that those nurses have, Mr. Kelley said, is the lack of suitable institutions and beds. After developing a state sanatorium, a number of institutions for county cases of tuberculosis were created. However, the nurse is as essential as the institution. The completely rounded-out program, in Mr. Kelley's opinion, would be to have the nurse working in the home, getting the patients into the institution and supervising them after they come back; the institution taking the cases that cannot be properly handled in the home.

DR. HERBERT L. WRIGHT, Kenosha, Wis., said that Kenosha will complete an isolation hospital soon. A health and dental clinic has been established; also a baby camp on an island in the lake, and a laboratory known as the State Cooperative Laboratory.

Publicity, Dr. Wright said, plays a very large part in the progress of health work. The public should be educated in regard to health activities. The people must see something. The baby camp and the dental clinic are tangible activities. Vital statistics also play a very large part.

Dr. Herman N. Bundesen, Chicago, said that in Chicago all cases of tuberculosis are visited. If the patient does not take reasonable precaution, he is reinstructed. If after several investigations, the patient does not adhere to the rules, the authorities placard the premises for five days. If this does not bring results, the patient is hospitalized. Usually, after from five to six weeks, the patient asks to go home. If conditions at home are safe, he is discharged. If he is an open case, he is visited at least once a week, and if he is slipping on the instructions, he will again be hospitalized.

Dr. Bundesen said that the idea of the visiting nurses is impossible, impracticable. They have no authority. The health department has the authority. The sanatorium or visiting nurse cannot get the cooperation of the patient. The health department can handle the case. With authority, tuberculosis can be controlled like any other communicable disease.

Dr. P. S. Schenck, Norfolk, Va., said that when Virginia passed some new child labor laws, two years ago, the health department was besieged with applications for birth certificates, about one in four or five of which could be supplied. In order to improve birth registration the King's Daughters were interested in this proposition. A force of 600 women was organized. The city was divided into districts, with about twenty workers in each district. Every house in the city was visited and every birth in every family for the past six years was registered. The state health department helped to check the reports. Not only have those ladies become interested in the birth registration, but they instructed the people as to future reports and getting in touch with the health department on other matters. In handling the food proposition, Dr. Schenck said, they organized the housewives. These ladies appointed a committee in every district in the city; visited the stores, and reported everything they saw that did not suit them. To control tuberculosis, an antituberculosis league was organized. A clinic was opened at which a small entrance fee is charged. The league has about 3,000 members. Two nurses and one doctor do this work.

Dr. I. D. Rawlings, Chicago, said that hospitals are essential to the control of communicable diseases. Hospitals also make for much less hardship in the home. The quarantine restrictions in Chicago are very drastic in many respects. No worker can live at home unless absolutely shut off from all communication with his family when a major disease is under quarantine, hence, it is a kindness to that family to place the patient in a hospital where the care is far superior and the death rate smaller. Chicago is not doing much on prenatal work because of lack of funds. The requirements of the state department of health in the various states should be reasonable but effective, and then the communities in that state should be required to live up to these requirements. Scarcely a day passes that the Chicago Health Department does not ask cooperation of the police department in enforcing these requirements. About 180 cases of venereal disease are reported each week through the courts, and in many instances the judge paroles in the regular routine manner. These people are either paroled to a physician, who will assume responsibility for treatment of those patients, and also guarantee that these women will not infect others while under treatment. Some persons who cannot be paroled are placed under treatment in a hospital set aside for that purpose.

Dr. O. B. Nesbit, Gary, Ind., said that in Gary the "Children's Bureau" is making a survey of all children under 7 years of age. They are notified to come to school and a study is made of these children in the kindergarten and first grade. The parents are asked to be present at the examination. He believes that this work is more promising than the work of the visiting nurse. The parent should be encouraged to talk to the doctor. The people want to see and know what the doctor says about things; it is a point in school work that has been neglected.

Dr. Hasbrouck De Lamater, St. Joseph, Mo., said that in his city the salary of the full-time health officer is paid, in part, by the board of education and in part by the board of health, and also by means of donations from public spirited citizens. The duty of the health officer or director of hygiene is a preventive and educational one. Sickness comes under the Board of Public Welfare. They appoint their staff physicians, and all medical, surgical, obstetric cases are taken to the hospital or cared for in their homes by what they term the family physician. He is convinced that volunteer work in school inspection is worthless. The average practitioner will take care of his own patients first before he takes care of the school work. An ordinance in St. Joseph gives the director of hygiene power to go into the home and take out any infectious case, no matter what, even venereal disease, and hospitalize the patient. The system to carry on the public health work of the smaller cities, Dr. De Lamater said, must be adapted to that place. Too many men have been theoretical rather than practical.

Dr. Peter Brice, Montreal, Canada, said that he had compared the deaths and hospital cases in the sanatorium at Ottawa with those of the city of Hamilton, Ontario, both cities having about the same population. In Ottawa the death rate from tuberculosis has been high. Hamilton has been going down in the number of tuberculosis deaths. For several years the two cities have had sanatoriums or hospitals for advanced cases. In every respect the two cities have been similar. Ottawa has a very good organization, but Hamilton has a better organization. In 1916 Ottawa had 211 cases in the sanatorium. Hamilton had 246 cases. Ottawa had fifty-one deaths in the sanatorium; Hamilton had twelve cases. Hamilton had eighty-eight persons under 15 years of age under treatment out of the 246 cases. Ottawa had eighteen. Hamilton had 142 days' treatment for each case, on an average; Ottawa had ninety-five days. If the disease is discovered in its initial stage, and the patient is kept under treatment until practically cured, these cases will not become old cases, going to hospitals and dying, because they go in too late for treatment. The hospital is as essential as the visiting nurse, and the visiting nurse is as essential as the hospital. In Hamilton 90 per cent. of the patients in the sanatorium come through the nurses of the public schools. In Ottawa the nurses are not under the board of health, and they are not finding the early cases in children. The parochial schools have no nurses at all. The class of population whose children attend these schools furnishes the larger number of tuberculosis cases. Toronto has ninety-three public health nurses doing the district work. Last year they had eighty-six deaths in July among children under 1 year of age. Montreal had sixty with a population five times as great.

Dr. C. J. O. Hastings, Toronto, Canada, said that the control of communicable disease which has been looked on as the "be all and end all" of public health administration, is only the fractional part of it, although it is essential. Health work must begin with the expectant mother. The conditions under which she is living and the revenue of the home, etc., must be such as to make it possible for her to bring into the world a fit offspring. Toronto has made provision for prenatal care, and the care of the child of preschool age, a period sadly neglected in public health work. Mothers have been supervised during the expectant period at "well baby clinics," of which Toronto has twenty-three. The children are brought there to be weighed, measured and examined by physicians. The follow-up work is done by the public health nurse. The children of preschool age that are left there while the mothers are working are examined. In that way many defective conditions of the child will be removed before it enters school. Dr. Hastings said that nine tenths of the efficient public health work is educational. In Toronto this work is done by the health authorities and not by the board of education. The importance of a complete physical examination of every child entering the school, having the parent present, cannot be overestimated. It is effective education. In nine cases out of ten, the parent witnesses the examina-

tion, and is delighted to know that they have a physical record of his or her child, or attention may have been drawn to some defective condition. Before the children leave school a complete physical examination ought to be made again, to determine the best vocation in life for that child.

Toronto has ninety-three public health nurses, taking up all activities in connection with the department. That includes the activities in connection with the school work. There are no school nurses or tuberculosis nurses or child welfare nurses. The public health nurse is doing the combined work. The school nurse, when her duties are done, so far as school is concerned, is visiting some of the homes in the district, ascertaining the conditions there. By specializing in the home rather than on the disease, the work is done much more economically and much more efficiently.

DR. DONALD B. ARMSTRONG, Framingham, Mass., emphasized the value of using women in canvassing and covering the different sections of a community for various purposes as was done in Norfolk. Framingham made use of neighborhood committees, and in one year increased the number of registered births by nearly 30 per cent. He suggested that very frequently that type of an organization can be made a permanent organization by selecting, on various streets, the leaders, those who have the most enthusiasm, and making them a permanent group for that particular neighborhood. When called on they will attend to the distribution of literature, canvassing for medical examination, reporting of sickness as well as births, and other things. Framingham has also organized the schoolchildren into "health crusaders." This has also been tried out in other communities, and is proving very profitable. About 80 or 90 per cent. of the children are health crusaders. They are members of clubs in their own schools, and are helping in various ways to do different things in the community, such as sanitary inspection. This educates the youngsters and furnishes useful information. Each child keeps his own score card of public health activities and various hygienic practices that he is supposed to observe, such as hand washing before meals, sleeping a certain number of hours, etc. All of this proves to be very useful, and has interested the children so that they are now "thinking health" primarily.

DR. J. M. FURSTMAN, La Crosse, Wis., speaking of tuberculosis said that a combination of both the institution and nursing service would be ideal. But with the smaller communities, with 200 and 250 cases of tuberculosis and an institution accommodating, say, only forty-four cases, not much would be accomplished by hospitalization. With the general practitioner, most of the cases reported are far advanced cases. There is not any question that other members of the family have already become infected. Contagious disease hospitals in the smaller communities, the speaker said, are an expensive proposition. If an arrangement could be made for some of the smaller hospitals to make an addition to the hospitals to take care of communicable diseases, the maintenance cost would be less, and more cases could be admitted. He is satisfied that we can get considerably better results for the small amount of money it is going to cost to take care of these cases in the hospitals. A hospital for communicable diseases with a bed capacity of forty would cost $50,000. A small isolation hospital in connection with one of the hospitals gave facilities in La Crosse for taking care of twelve or fourteen people comfortably. This hospital has been remodeled, and now has facilities for about thirty-five. All the expense the city has had to bear is the taking care of the patient in the hospital. There is no overhead expense; no maintenance whatever. If that system can be adopted in the smaller communities, more cases can be hospitalized.

Ascaris Escapes Through Ear.—The little girl of 4 was taken suddenly with intense earache, but there was no fever, and paracentesis brought no pus. By the third day the child had syncopes, violent nystagmus and general convulsions, and then something was seen in the ear which resembled the wormlike mass from a tube of tooth paste. It was seized with Kocher forceps and proved to be a male ascaris nearly 6 inches long.—*Revue de laryngologie*, 1918, **39**, 358.

THE ORGANIZATION OF HEALTH DEPARTMENTS

IN CITIES OF ONE HUNDRED THOUSAND TO FIVE HUNDRED THOUSAND POPULATION

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No hard and fast rule can be laid down for the organization of health departments for all cities of between 100,000 and 500,000 population.

Very few cities present exactly the same health problems. It follows, therefore, that while a general plan may be suggested, this plan must be flexible enough to meet varying needs due to purely local conditions.

At the present time, it would be difficult to find two cities with the same organization. Some are governed by an independent board; others are a division of some other department, such as the service or safety department; and still others are under a commissioner of health appointed by the mayor. Some have charge of hospitals, insane asylums, charitable and correctional institutions, plumbing and building inspection. In some cities, school medical inspection is a school board function, in others a health department function. Others include street cleaning and the disposal of ashes and garbage.

This lack of system leaves one practically helpless to make comparisons or to arrive at a definite conclusion as to the per capita expenditure of a given city for purely preventive medicine work.

The chaotic state in which we find the subject is probably due largely to differences in state laws and to the revolutionary political period through which American cities have been struggling. Geographic location is also of importance because of the special problems that may confront officials of coast cities or those located on or near international boundary lines. To the foregoing may be added the tremendous strides made in our knowledge of the subject of disease prevention during the past quarter of a century, and the slowness or rapidity with which this knowledge is applied.

In dealing with this subject, it is understood that nothing more than a skeleton form of organization can be outlined, and that the population to be served is to be taken into consideration in determining the number of employees working for the particular city under question.

Control by a board of experts has advantages that are hard to duplicate in any other method of organization. Among these may be mentioned a continuous policy, practically free from political interference due to changes in administration. Public health work is a highly specialized branch of medicine, requiring a vast amount of time to acquire the knowledge necessary to secure efficient results. Change in the executive officer and his force with each change in the general administration of a city results in disintegrating a trained force and substituting one inexperienced and necessarily inefficient. While incumbency is not synonymous with honesty and efficiency, the experience gained in eight years of public health work has given me a very high opinion of the honesty and efficiency of the average individual if freedom of action is assured him in the performance of his duties. Ser-

vice under an independent board insures freedom of action to a greater degree than can be hoped for when appointment comes from some other source.

Boards of health have legislative powers and are independent of other branches of the city government in passing necessary regulations. The work of the board necessarily gives it information concerning sanitary needs and the proper method of meeting them that is impracticable for others to acquire whose time is taken up largely with other duties. In other words, it specializes in its work, knows just what it wants, and takes the most direct method in securing it.

In their recommendations for an ideal health department for Minneapolis, Biggs and Winslow say:

> The administration of health laws, as in the case of most other municipal activities, should be in the hands of either a single expert or a small body of experts, in order to obtain the best results. In most city departments the single commissioner is preferable to the board. In the case of the health department, however, the framing of ordinances requires the exercise of legislative powers which can not be entrusted to a single officer. If there is a single health commissioner with no board, the ordinance framing power must be left in the council. With the complexity and rapid progress of public health science on the one hand, and the pressure of private interests on the other, such a course is certain to be disastrous. It is for this reason that whatever may be the case in other departments of government, sanitary policies and legislation and administration can be most successfully developed and carried out by a board.

The work of a department of health includes a wide variety of functions, making it necessary to group those closely related into different divisions. These, in turn, may occupy ground that is common to two or more divisions, so that the best results can be obtained only by the fullest cooperation between the various divisions. The work of the divisions of medical inspection, food inspection and the laboratory in a milk-borne epidemic of diphtheria or typhoid fever may be cited as examples of instances in which three or more divisions might be actively engaged in solving one problem.

While very few health departments perform the same functions, most of them have divisions of general administration, medical inspection, food inspection, sanitary inspection, laboratory, and vital statistics, and I shall give these divisions consideration in developing the title of this paper.

GENERAL ADMINISTRATION

To general administration belong the executive officer, the clerk and stenographers. The successful executive officer must have something in addition to a knowledge of the game to insure success; he may have a very wide knowledge of his duties and yet be a failure as an executive. Brusqueness and incivility are no longer accepted by the public as infallible signs of genius, or excused on the ground of temperament or eccentricity. He must be able to secure results and do it without creating opposition. The ability to refuse unreasonable demands and send the applicant away feeling that he has been the recipient of unusual favors is one possessed by few men, but one that is very essential to success in public health work. He must be able to harmonize the little jealousies that do so much to disorganize a force and destroy its efficiency. In a word, he must be not only a master craftsman, but he must have the personality that counts for success in any walk in life. Similar personal qualities are essential for a successful clerk, for the reason that one weak link in the chain destroys the usefulness of the whole.

Publicity might well be placed in the division of general administration. The public knows what it sees, hears or reads. Where one gains knowledge by seeing or hearing, thousands learn by reading. For this reason, the activities of a department should be placed before the newspaper-reading public by some one individual in the department with special aptitude for that kind of work.

FOOD INSPECTION

The division of food inspection should employ experts only. Laymen cannot be expected to have the exact knowledge necessary for efficient work. Milk and dairy, and meat inspectors should be graduates in veterinary medicine. Since adopting this rule, Cincinnati's meat inspection service has been placed on a par with government meat inspection. The chief of the division must be familiar with all varieties of food and their multitudinous forms of adulteration. My ideal of a chief food inspector is one with this knowledge and the heart of a gladiator, for he needs that quality to place "the fear of God" in the hearts of that small minority whose rascally actions lower the tone of the entire food industry.

Food inspection should include surveillance over all foods, and the places and persons engaged in the industry, with authority to enforce regulations necessary to protect the general public from articles detrimental to health. Most forms of adulteration are commercial frauds, and their detection could very properly be assigned to some other department. It is the meat and milk supplies and other perishable foods that require constant watchfulness on the part of the food inspection division. Close cooperation with the division of infectious diseases is necessary in order that food-infected foci may be located and proper steps taken to limit the spread of infectious diseases. One or more central points for the pasteurization of milk, under supervision of the health department, would be the most important step that could be taken to minimize the spread of infection through this important article of food.

MEDICAL INSPECTION

The division of medical inspection should have as its chief an expert in the differential diagnosis of the acute infections. Medical inspection should include medical relief of the poor, surveillance over infectious diseases, the enforcement of quarantine, school medical inspection, open air schools, pure milk stations, dental inspection, epidemiologic study of the acute infections, the isolation of diseased prostitutes, prenatal and postnatal instructions, prevention of infant mortality, control of tuberculosis with special reference to the removal and detention of vicious consumptives, and control of midwives with particular attention to the prevention of blindness.

Management of hospitals, insane asylums, and correctional or charitable institutions has no place in public health work except to control the method of admitting and discharging cases of infectious disease and general sanitation of the institution.

School medical inspection should be under the control of health departments. If carried on by the board of education, twilight zones of authority are created that cripple efficiency and give rise to needless fric-

tion. In other words, a division of authority always paves the way for inefficiency or leads to a duplication of effort and expense.

Full-time work is an absolute essential for district physicians if the best results are to be obtained and friction between the family physician and district physician is to be reduced to a minimum. Since the adoption of this policy in the Cincinnati Health Department, the work of the district physicians shows an increased efficiency of about 40 per cent., and misunderstanding with the general profession has practically disappeared. As they have no private practice, there is no ground for the suspicion that their acts may be inspired by selfish motives.

An adequate force of nurses is necessary to follow up the cases. Their influence in the home has been of the greatest importance in securing compliance with the recommendations of the district physicians.

The epidemiologic study of tuberculosis has been neglected. It is reasonable to believe that much could be learned that is now unknown concerning the spread of this disease, and the application of this knowledge would result in decreasing the morbidity and mortality rates from this cause. Every city of the first class should have one or more experts giving all their time to the study of this disease. These experts would logically be a part of the force engaged in carrying on the subdivision of tuberculosis.

The results obtained in cities devoting special attention to prenatal and postnatal instruction, to the control of ophthalmia neonatorum, and to the prevention of infant mortality, more than justify the expenditure necessary to provide the nursing and medical service.

Cincinnati's Association for the Welfare of the Blind, for example, in two years treated fifty-nine cases of "sore eyes" in new-born infants without blindness occurring in any case. This was done at an annual cost of about $1,000 to the Association, and includes the salary and incidental expenses for a nurse. It is not to be assumed that all of these cases would have resulted in blindness had the patients received no treatment, but the chances are that many of them would have become life-long dependents from this cause. If only one was saved from this fate, the cost of prevention returns a dividend to the state for education alone of 450 per cent. Assuming that all were saved from blindness, the return on the investment amounts to 13,075 per cent., or $261,500. The foregoing figures are very conservative, for they take no account of the blind pension and other expenses borne by public and private charity or of the economic loss due to impaired productive units.

Other figures showing the enormous economic saving brought about directly through public health work could be brought forward that would stagger the imagination.

The prevention of infant mortality means coordinating the efforts of numerous functions. Improvement in milk and water supply, the establishment of pure milk stations, the education of parents through lectures delivered to mothers' clubs, and through visiting nurses, have resulted in a reduction since 1910 in deaths from diarrheal diseases in infants under 2 years in Cincinnati from 104 to 40 per hundred thousand of population. The economic saving in eight years, assuming the potential value of an infant to be $1,000, amounts to over a million dollars, which amount is hundreds of thousands of dollars in excess of what it cost to run the entire health department during that period. Intelligent expenditure of a small amount of money on prenatal and postnatal instruction would result in still further reducing infant deaths from preventable causes.

SANITARY INSPECTION

The division of sanitary inspection is confronted with problems of sufficient importance to require a chief who is a graduate in sanitary engineering.

As plumbing, heating, lighting and ventilating are all vital factors in determining the average state of health of a community, it seems rational to include plumbing, building, workshop, factory and tenement house inspection in this division. In Cincinnati, plumbing, building and tenement house inspection are in a subdivision of the department of public safety, while workshop and factory inspection is performed by the state. The arrangement is not a happy one for the reason that it is impossible to define accurately the line of authority separating the three departments. Work is duplicated, and not infrequently one may find three sets of orders on the same property, differing one from the other according to the personal views of the inspectors.

Close cooperation should exist between the division of sanitary inspection and accredited delegates from labor unions. In Cincinnati, the sanitarians of organized labor meet with the sanitary chief twice each month. Information concerning insanitary conditions in workshops and factories is solicited, special care being observed to suppress the source of the complaint. A vast amount of good has been accomplished, and the unions are enthusiastic in their support of the plan. The complaints are referred to the building inspector, the state inspector, or the sanitary division of the health department, according to the nature of the complaint, and the proper authority to conduct an investigation. While the work described is not ordinarily found in a health department organization, it has much to commend it to those desiring to develop latent activities in a municipality. It is a means of edusation among a class of people who are more vitally interested in securing improved sanitary conditions than any other class in the community.

In the matter of dealing with nuisances, American cities could adopt European methods with advantages in the way both of increased efficiency and economy. The regular police are charged with this duty abroad. The plan has the advantage of a large force of inspectors; regular police officers cover their beats every day, often several times each day. Orders received from a man in uniform carry more weight than those coming from the average inspection force of a sanitary division. The notion that it is beneath the dignity of a regular policeman to report conditions threatening the health of citizens is foolish and needs radical revision. He should be made responsible for sanitary conditions on his beat, as well as for the safety of life and property.

The work of the building department and that of the division of sanitation of the health department necessarily bring the two functions into close relationship. Questions concerning sanitation very naturally belong to that division; those dealing with structural defects which may have no bearing on sanitation belong to the building inspector. Lack of light and air, the presence of dampness, inadequate sewage disposal, etc., are conditions detrimental to public health and may be due to structural defects, thereby placing

the solution of the problem in both divisions of the city government. This necessarily means a division of authority and responsibility, and calls for the closest cooperation between the two.

In Cincinnati, a vacation ordinance has done much to simplify the work of both divisions.

LABORATORY

The laboratory division calls for the full-time services of expert chemists and bacteriologists. Chemical and bacteriologic examinations of water, milk and other foods subject to infection or liable to adulterations that may directly endanger the public health are indispensable, as are facilities for the free diagnosis of specimens from cases of diphtheria, typhoid fever, tuberculosis, rabies, etc. The manufacturing of antitoxins and vaccines entails an expense that few cities are justified in assuming, and one that is better left in the control of commercial houses.

The detection of frauds practiced for purely commercial reasons and the assaying of materials used in filling public contracts, which have no bearing on public health, have no place in a department of health laboratory.

VITAL STATISTICS

The vital statistician has been called "humanity's bookkeeper." He needs considerable in the way of tact to meet and overcome the eccentricities with which a very small minority of the medical profession burden themselves. The work includes the securing of reports and classification of births and deaths.

The reporting and classification of communicable diseases is so intimately bound up with the work of the division of medical inspection that it is included in that division of the Cincinnati health department.

CONCLUSION

In closing, it seems desirable to state that a department may have an ideal organization on paper but a very mediocre one in securing results. While a good plan is desirable, good results may be obtained in spite of the fact that the paper plan is full of defects.

In the long run, results are brought about by men who are qualified to carry out policies by a close and harmonious cooperation between chiefs of divisions and other departments of the city government. Without the proper qualifications and close cooperation, any scheme of health administration degenerates into a ghastly joke and a gruesome tragedy.

Killing Head and Body Lice.—In an article on the louse problem in the United States Army, printed in the *Review of War Medicine and Surgery*, October, 1918, the following method of killing head lice is given: Clip the hair of the head with a hair clipper and wash with a mixture of equal parts of vinegar and kerosene. This should be followed in a few hours by a bath of soap and hot water. Following this treatment a search should be made for nits and lice and if found the treatment should be repeated. For crab lice the same mixture is used, after shaving the pubic region, axillae, chest and legs. As mercurial ointment, which is sometimes used, may cause a dermatitis, yellow oxid of mercury 10 parts, salicylic acid 1 part and petrolatum 20 parts may be substituted. For body or clothes lice, heat, either dry, or, better, in the form of steam, is best. Other things suggested are the English N. C. I. powder, consisting of naphthalene 96 per cent., creosote 2 per cent. and iodoform 2 per cent. The powder is dusted over the underclothing and on the inside of the outer clothing once a week. Also crude oil 9, soft soap 5 and water 1 part, or, soft soap 10 and crude naphthalene 90.

CEREBRAL SPASTIC PARALYSIS*

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The syndrome known as Little's disease was first brought to the attention of the profession by Little of London, who, in 1843, in a lecture before the London Orthopedic Institute, reported several cases of the disease, which since has borne his name.[1] For a great number of years, this syndrome was erroneously classified as a medical entity, without any regard for the numerous causative factors. Since its etiology has been more completely recognized, it has been found that instead of its being a single medical entity, there are a great number of conditions with various etiologic factors, all producing the same end-results classified as Little's disease.

Cerebral spastic paralysis, or hemiplégie cérébrale infantile, seems a better term by which to express the manifestations of these various etiologic factors. The latter have been well classified by Grossman[2] into three groups: 1. intra-uterine, or prenatal; (2) natal, or intrapartum, and (3) extra-uterine, or postnatal.

The most important prenatal factors are malformation of the brain, porencephaly, microcephalus, atrophy of one hemisphere, congenital cysts and cerebral disease. In the intrapartum etiology, the chief factors are intermeningeal hemorrhage, intercerebral hemorrhage, cerebral palsy, and degenerations of the pyramidal tract after premature delivery. Injuries to the skull with subdural hemorrhage, circumscribed encephalitis, sinus thrombosis and embolism, and syphilis constitute the chief extra-uterine causes. In order to facilitate a clearer conception of the manner in which all these enumerated factors may produce the same end-results, the physiologic pathology on which spastic paralysis is based must be studied.

Whenever there is a break in the continuity of a motor corticospinal tract, of which the pyramidal tract is the most important, there results a characteristic motor paralysis. Irrespective of whether the lesion be situated in the brain or the cord, the resulting paralysis will be the same. This paralysis consists of a paralytic and a spastic component.

ETIOLOGY

Normally, impulses are propelled along the pyramidal tract to the various muscle groups, enabling these muscles to perform certain voluntary motions; but when there is a break in some part of this tract, these impulses no longer reach the affected muscle, and they are consequently unable to carry out certain of these voluntary motions or all of them. This is termed the paralytic component. On the other hand, an involuntary spasticity of the muscles takes place, which adds itself to the actual paralysis and intensifies it. If this spasticity is examined more closely, it becomes

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* From the Surgical and Orthopedic Divisions of Mt. Sinai Hospital, Cleveland.
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* Because of lack of space, this article is abridged in THE JOURNAL by the omission of the footnotes. The complete article appears in the author's reprints, a copy of which will be sent by the author on receipt of a stamped, self-addressed envelop.

evident that the underlying cause of the condition is the increased reflex excitability of the peripheral muscles. Sensory impulses arising in the skin, ligaments, joints, and especially the muscles, are propelled along the sensory peripheral nerves and the posterior nerve roots, through the gray matter of the cord and the anterior motor cells, along the motor roots and motor peripheral nerves to the muscles, forming the spinal cord reflex arc. It is this reflex which maintains muscle tonus, and keeps the muscles in a certain degree of fixation. For convenience sake, it has been termed the fixation reflex. The pyramidal tract contains fibers which have an inhibitory action on this fixation reflex, keeping it at a point equivalent to the normal muscle tonus. But when the inhibitory action of the pyramidal tract is destroyed, allowing the fixation reflexes to exercise their full power on the muscles, without any restraint whatever, they cause spastic muscle contractures. This is the spastic component of the paralysis. Proof of this theory may readily be found in the living human pathology. One need only examine a tabetic patient, and observe the flaccid condition of the muscles to note the comparison. There is a complete absence of muscle tonus, due to a break in the continuity of the fixation reflex arc, resulting from the degeneration of the posterior tracts of the cord. But more convincing than this is the clinical picture of a patient suffering from a lesion of the pyramidal tract, with marked muscle contractures, who secondarily acquires a tabes. The muscle contractures relax, and instead of a spastic paralysis there results a flaccid paralysis.

After careful perusal of these pathophysiologic facts, one may readily see that any one of the previously enumerated etiologic factors, acting on the pyramidal tract, either in the brain or cord, may be the causative factor in the production of spastic paralysis; and the degree of impairment is dependent entirely on the extent of the involvement of the pyramidal tract.

It does not lie in the scope of this paper to discuss in detail the anatomic pathology of the various etiologic conditions which may produce this syndrome, since the end-result will be the same, regardless of whether the causative lesion produces an injury to the pyramidal tract by means of pressure, inflammation, edema or hemorrhage.

SYMPTOMS

The cardinal symptom characterizing cerebral spastic paralysis is a spastic rigidity of the muscles, varying in location and intensity with the motor areas involved. Sharpe[3] very clearly defines where the lesions may be encountered in the various degrees of paralysis.

In a spastic paraplegia, which results from a lesion situated over the upper portion of both motor areas, both legs are affected. Very often it is overlooked for several months after birth, but eventually the mother notices a rigidity of the muscles. When the child begins to walk, the posture is characteristic. There is a talipes equinus which varies in degrees of intensity. The heels are everted and the knees approximated. However, if the lesion is over the upper two thirds of the motor tracts, the arms as well as the legs are involved. In this condition, the feet are crossed in the pes equinus or equinovarus position. The whole body may at times become rigid. The hands are used awkwardly and very often it is difficult to raise the arms or to abduct them. In rare cases of extreme spastic diplegia, in which practically the entire muscular system is involved, the complete motor area of both cortical hemispheres is affected. However, the condition one most frequently encounters is that in which the lesion involves one cortical hemisphere and produces either a monoplegia—the impairment of a leg or arm on the opposite side—or a hemiplegia characterized by spasticity of both the arm and the leg or the entire side of the body opposite the lesion. The elbow and wrist joints are flexed and the arm is held close to the body. There is a flexion at the knee and hip joints and plantar flexion at the ankle joint. A slight paralysis may be found in one facial nerve. Sensory disturbances are rare. The knee jerks and reflexes are accentuated. Unilateral squint is often present.

Flexion contractures of the muscles are the product of hypertonicity and are accompanied by a corresponding overextension of opposing muscle groups, the extensors. There are, however, milder forms of spastic paralysis in which merely an awkwardness in gait is manifested. Athetoid movements and convulsions may often be observed in these patients.

The majority of cases, to be more exact 60 per cent., are due primarily to intracranial hemorrhage.[3] It is interesting to note that in these cases the intracranial pressure is not as great as in those in which intracranial tumors exist. Occasionally, however, one can make out the beginning of papilledema and "choked disk," which are so characteristic of intracranial tumors. The optic disk margins are found blurred and edematous and the retinal veins are dilated.

It is not difficult to make the diagnosis of spastic paralysis, since it is based on the spastic condition of the muscles, the increased reflex excitability, and the lack of muscular coordination. Very often, however, there are no focal symptoms which are indicative of the origin.

If permanent degeneration of the pyramidal tract has occurred, it is almost fruitless to attempt alleviation, for it is needless to say that destroyed nerve elements possess very little, if any, regenerative powers. Unless the basic elements, such as hemorrhage, are relieved soon after their occurrence, it will be futile to attack the brain in the hope of relieving the spasticity of the muscles. The same principle applies to brain cysts and other destructive tumors. Consequently, it is obvious that the treament, for the most part, is of necessity symptomatic and entirely dependent on the degree of spasticity and the extent of muscular involvement.

In addition, the surgeon must take into consideration the mental state of the patient. The degree of mental impairment is often such that surgical procedure is contraindicated. To make the after-treatment effective, intelligent cooperation is essential. These unfortunate beings are very often forced into seclusion and are dependent on their limited resources for mental development. As a result, their intellectual growth is often retarded. As a matter of fact, in a number of cases in which we operated, following resection of the posterior roots, we noted a marked improvement in mentality, which we attribute partly to the more favorable surroundings during their stay in the hospital.

TREATMENT

The treatment of spastic paralysis must, therefore, consist in restoring to the higher centers the power of useful, coordinate movement in the limb or limbs

afflicted; in restoring muscle balance; in overcoming the ataxia, and in training the muscles to respond quickly and accurately to the normal centripetal stimuli of physiologic activity.

In the mildest patients, possessing a high grade of intelligence, it is quite feasible to accomplish this by long continued developmental and educational exercises. A perfect cure is never to be anticipated with this or any other method of treatment, but useful function can frequently be attained. In very young children, the Montessori system of education will be found useful in exercising the upper extremities. Such educational training must be carried through many years, and various types of exercises, apparatus and useful, purposeful motions (as in the curative workshops of adults) may be improvised to meet the demands of the case.

When the spasm of the muscles is greater and contractures exist to a greater or less degree, mechanical intervention becomes necessary in order to equalize the lack of balance in the muscles at the afflicted joints, before the educational training may be successfully carried out.

OPERATIVE PROCEDURE

Such operative procedures are ordinarily employed to weaken the power of the stronger spastic groups, which are as a rule constant in all cases. The muscles usually afflicted are the flexors of the wrist and fingers, the pronators of the forearm, the flexors of the elbow, the abductors of the thigh, the extensors of the knee and the plantar flexors of the foot. The following outline gives in brief the courses of treatment open to the surgeon:

1. Muscle and Tendon Operations:
   - (*a*) Forcible redressment and overcorrection.
   - (*b*) Tenotomy.
     1. Subcutaneous.
     2. Open.
   - (*c*) Tendon lengthening.
     1. Subcutaneous.
     2. Open.
   - (*d*) Muscle resection.
   - (*e*) Tendon transplantation.
   - (*f*) Muscle implantation.
2. Brain Operations:
   - (*a*) Trephining and evacuation of blood clots.
   - (*b*) Decompression.
   - (*c*) Excision or evacuation of cysts or tumors.
3. Motor Nerve Operations:
   - (*a*) The causation of temporary paralysis by means of various injections (Allison's method).
   - (*b*) The partial resection of the motor nerves leading to the spastic muscles (Stoffel's operation).
4. Centripetal (Sensory) Nerve Operations:
   - (*a*) Resection of the posterior nerve roots (Foerster's operation).

The choice of operation depends on the etiologic factor and on the necessity of weakening the spasm of definite muscle groups, to a degree approaching normal muscle tonus. Almost all the operations enumerated allow of fairly exact dosage, which is usually determined by the amount of overcorrection used or the amount of nerve tissue resected.

The patient must possess at least such promise of sufficiently high intelligence as to warrant a hope for the success of the educational after-treatment. In many cases, the intelligent mind seems to be awakened by a successful nerve operation, such as the Foerster operation, but too much ought not to be anticipated from this source. There are many cases in which the spasm is so completely in control of all muscle function, that any hope of improvement that might have been entertained must be abandoned. This is true in cases in which the involvement of the upper extremities is so great that spasm from their use will of itself spread to the corrected lower extremities in such measure, as to preclude success. The severe ataxic, the epileptic, the choreal and the athetoid cases are confessedly hopeless, and the patients are not to be operated on, except possibly for a few tenotomies, etc., to permit the improvement of certain fixed attitudes.

Forcible redressment with overcorrection is seldom advisable. The tearing and rupturing of muscle fibers, tendons or ligaments leads to great pain, which of itself calls forth muscle spasm and defeats the very object to be accomplished. One indication for this procedure may be found in the severe cases of spastic pes valgus, which can often be markedly improved by forcible correction. The simple fixation of a joint or member in maximal overcorrection under anesthesia, without the use of any force whatever, will be found very useful in mild spasm of the shoulder or elbow joints.

Tenotomy may usually be accomplished subcutaneously. When important nerves or blood vessels in the neck might be endangered, it is better to resort to the open operation. Tenotomy does not admit of exact dosage, and when there is danger that the opposing muscles will assume the permanent balance of power and give rise to the opposite deformity (as in the foot), it should never be done. In the correction of the flexion contracture at the knee, one of the weaker hamstrings should always be left intact, lest the unopposed strength of the quadriceps result in a permanently extended knee and a stiff knee gait.

Subcutaneous tendon lengthening presents the same disadvantages as to dosage as does simple tenotomy, and is of little value. The open tendon, lengthening with only a small amount of overcorrection, should be the operation of choice for the Achilles tendon, as spastic calcaneous usually results from a too free lengthening of this tendon.

Tendon shortening is rarely found necessary.

When muscles have no tendons (pronator quadratus), or when the tendons are not accessible, muscle resection or the freeing of the muscle body from its periosteal origin (Soutter's operation) is indicated.

It will be seldom found necessary to transplant tendons, because of the usual good strength of the active opponents. It is quite possible that in excessive pronation of the forearm, the muscle and tendon operations advised by Tubby for the relief of this condition, due to other causes than Little's disease, might be found useful. We know of no case of Little's disease in which this has been tried, but there is no reason why it should not be successful in suitable cases. This operation consists of the transference of the tendon of the pronator radii teres into the ulna, the resection of the pronator quadratus, and the transference of the flexor carpi ulnaris around the wrist to the radial side of the back of the hand.

AFTER-TREATMENT

These operations are all to be followed by a period of fixation in plaster in an overcorrected position. Care must be taken that the amount of overcorrection is quite exact, lest a deformity in the opposite direction

should result. The greatest care must be taken with the foot. On the other hand, the overcorrection of the spasm of the adductor muscles must be complete. After a few weeks, the plaster may be temporarily removed and passive motions begun.

Too long fixation is harmful. It renders the joints stiff and painful, and often exudates may be found in the joints, especially the knee joint, after three to four weeks of continuous fixation.

Passive motions produce pain, and often give rise to all sorts of nervous or even neurotic outbursts. We have in mind one case of most severe spastic contractures of the lower extremities, beautifully overcome by means of a Foerster operation, in which the permanent muscle shortening and resulting deformity had to be overcome by tenotomy and overcorrection. This patient complained of so much pain in various muscle groups, and became so neurotic and even hysterical at the periods of massage and muscle training that these had to be abandoned, and the success of the operation was jeopardized for a long time. The patient was finally taught to walk, only to have an attack of influenza six months later, followed by such intolerable pain in the left hip joint that she absolutely refused to get on her feet again.

Passive motions are first carried out in bed and consist of abduction, adduction and rotation of the hips, and flexion and extension of the knees and feet.

As soon as possible, the motions must be performed actively. Finally the children are to be supported in an upright position by means of braces, apparatus or hand rings and compelled to learn, first, to stand and then carry out exercises in a standing position, keeping the head upright and the body erect at the same time. Often they can stand erect by merely leaning against a wall.

Foerster has called attention to the importance of teaching the use of the hips, knees and feet in their physiologic sequence. He noted that the children readily learned to shuffle along with the hips, knees and feet held straight but stiff, and after they had once learned to walk in this fashion, they could not be taught or compelled to walk in the normal manner. He advises that the children be placed with their faces against the wall and compelled to learn to flex their knees and ankles in this position. After this, they are to be taught to walk in "goose step" fashion, supported by crutches, walking chairs, etc.

For all this, almost unbelievable patience is absolutely necessary. Often six to eight hours a day are consumed in carrying out these stepping exercises, together with the finer movements of rotation of the thighs, flexion and extension of the ankles and toes, pronation and supination of the feet, and so on. Foerster recommends the continuation of this educational regimen for several years.

It is just in this particular that we have all fallen down, especially in this country. Few clinics have enough teachers and gymnastic instructors so that such instruction may be carried out for more than a few hours a day, and that for a few months only. Each case needs a veritable Mrs. Macy.

The operations on the brain have been carried out for the purpose of relieving the cause of the spasm. It is obvious that these procedures are indicated only in cases in which the spasticity arises from easily accessible portions of the cerebral tract and is not caused by disease or degeneration of the spinal pyramidal tract. We know of no way of accurately differentiating these cases into their appropriate groups, except in cases of undoubted birth trauma, in which examination of the eyegrounds suggests an increase in the intracranial pressure.

If, immediately after a difficult labor, the symptoms of intracranial irritation or pressure are marked and hemorrhage or a brain cyst can positively be diagnosed, the immediate decompression and evacuation of the clot or cyst is the operation of choice.

Unilateral convulsions alone, even if severe, are no indication for this operation, except in the presence of asphyxia and cyanosis. Mild unilateral twitchings not amounting to actual convulsions, even combined with asphyxia and cyanosis, are to be left alone, as the children usually recover with perfect muscular control.

To be successful, decompression must be performed within the first week of life. It has never seemed to us that the late trephining, with or without the evacuation of any possible cysts, could be of much avail on account of marked destruction of brain tissue. The later experiences of Sharpe and Farrell confirm this.

The causation of temporary paralysis by the injections of various drugs into the nerve trunks (Allison's method) has not yielded permanent results. The muscles are at first completely paralyzed, then only partially so, but finally the complete restoration of the previous nerve function occurs and the case is necessarily in the same state of muscle imbalance as before.

The partial resection of the motor nerves supplying the definite groups of overspastic muscles (Stoffel's operation), is based on a correct appreciation of the mechanics involved, and if it can be successfully carried out in precisely the same manner as the originator of the operation recommends, it will fill a definite place in the treatment of this affliction. With it, exact dosage and diminution of harmful muscle contracture ought to be secured, regardless of the appalling number of individual nerves it will be necessary to resect, even in the milder cases. The possibility of accurately carrying out this procedure, which must, of course, always be anatomically exact, in the larger common nerve trunks, as the sciatic, median, etc., depends on absolute constancy of the nerve pattern, and we know of no proof that this exists except Stoffel's own claims.

The possibility of regeneration of the resected nerve fibers must not be lost sight of in this procedure or in the Foerster operation, and sufficient nerve must be resected to avoid this condition.

The resection of the posterior nerve roots of the spinal cord, like the resection of certain parts of the motor nerves, does not aspire to remove the pathologic cause of the spasticity. It simply reduces the number of motor impulses which reach certain muscles or muscle groups and in this way relieves the spasm and brings the muscles to a state of contraction closely resembling normal muscle tonus. The same thing may be accomplished by interruption of the fixation reflex arc in any part of its course, and as we have shown in a previous chapter of this paper, is admirably accomplished by nature, by causing a degeneration of the posterior tracts of the cord in tabetic patients. Foerster selected the posterior roots, since this is the only part of the sensory system accessible to the surgeon's knife. The dosage is naturally dependent on the amount of involvement of the various muscle groups. The various nerve segments that supply these spastic muscles may be readily ascertained from tables published in any standard neurology.

METHODS OF DISTINGUISHING SENSORY AND MOTOR ROOTS

Various methods have been devised for the purpose of distinguishing between the sensory and motor roots, all of which may be classified under the following headings: physiologic, morphologic and anatomic.

The physiologic methods are dependent on electrical stimulation of the nerve roots, and are, perhaps, the most accurate, if properly and successfully carried out. On account of the close proximity of the posterior and anterior roots in the cauda equina, it is often impossible to apply the electric current to one root without stimulating a nearby root. For example, an electric current may be passing through a sensory root, which in turn is transmitted to a neighboring motor root, causing a muscle contraction, leading one to believe that the stimulated root is a motor nerve, whereas in reality it is a sensory nerve.

The morphologic methods, as the name implies, depend on the morphology of the nerve roots for their distinguishing factors. These methods are absolutely unreliable and may be discarded without further discussion.

The method we have used is the anatomic, and depends on the ligamentum denticulatum for the recognition of the posterior roots. The ligamentum denticulatum is a transparent, film-like membrane attached to the posterior roots, and is absent from the anterior roots. It is easy to recognize, and is very constant. The use of this method is reliable, and has served admirably in our series of cases. The location of the nerve to be resected is determined by the spinous process, under which it takes exit. A guiding spinous process may be permanently located by biting off its tip with a Rongeur forceps at the beginning of the operation.

If the proper nerve roots are selected, the spastic component of the paralysis may always be relieved and this, after all, seems to be the pertinent factor on which is based these children's inability to walk. When Foerster first described his operation, a great number of surgeons enthusiastically resected the posterior roots and were highly gratified by the immediate relief of spasticity which was obtained. But, as is often the case, they soon forgot about these poor patients and left them to work out their own salvation, with only an indifferent educational after-treatment. These patients quickly resumed their former habits and after a short time the spastic condition again returned. In our opinion, it is the lack of after-treatment rather than the regeneration of the posterior nerve roots which has caused most of the failures in operations of this kind.

MORTALITY

A word in regard to the mortality in resections of the posterior roots may not be amiss. In a series of twenty-two cases, we have had two deaths, a mortality rate of 9 per cent. In the first case, death resulted from shock following chloroform anesthesia. In the second case, death was due to a purulent cerebrospinal meningitis. In all but our first case, we have been blocking off the higher centers of the cord and brain by means of injection of procain into the cord immediately above the seat of operation. This procedure is carried out for the prevention of shock and also for the purpose of using as little anesthetic as possible. After the bony structures have been removed it is usually possible to perform the remainder of the operation under the anesthesia produced by the procain injected into the cord. The use of this method permits a much freer handling of the cord, and, after all, this seems to be the most dangerous part of the operation. If all manipulations are gently and quickly carried out in combination with the injection of procain, the mortality rate of resection of the posterior roots should not be any higher than the average severe laparotomy. In any event, it should not exceed 5 per cent.

After these operations on the nerves, it will often be found necessary to overcome the permanent contractures and shortening of the muscles by means of the tendon and muscle operations previously described. These operations will differ in no way from those done primarily for the relief of the spasm except that overcorrection and fixation need not be so long.

The gymnastic and other educational exercises must be painstakingly carried out, as has already been mentioned.

CONCLUSIONS

We should like to point out several salient features in the study of cerebral spastic paralysis:

1. Little's disease is not a medical entity, but rather a syndrome resulting from various etiologic factors.
2. No stereotyped procedure can be used in the treatment of these cases, and the treatment is dependent on the etiologic factors, the condition of the muscles themselves, and the intelligence of the patient.
3. All forms of treatment will fail unless the educational after-treatment is conscientiously and painstakingly carried out.

ABSTRACT OF DISCUSSION

Dr. George B. Packard, Denver: We are apt to forget that all muscles are spastic in these cases. If one has, for instance, had a calcaneus deformity follow a tenotomy for equinus, he will never forget that all the muscles are spastic. The final outcome is largely a question of balance. If that is true, I often wonder whether we are not overlooking the value of tenotomy. In doing tenotomies, if you get just the right length of tendon, the results are excellent. In order to prevent the recurrence of the trouble, one must follow up the after treatment—that is, mechanical treatment—particularly at night. My method is not to have the patient wear a brace in the day time for more than a few weeks, but at night, when he is inclined to curl up the leg or foot it should be worn for several months; and in that way, I prevent the recurrence of the trouble. Of course, if we do not get just the right length of tendon, we can operate later to lengthen it still more; but the point is to get just the right length, in order to maintain the balance of the muscles.

Dr. Ethan H. Smith, San Francisco: One of the most important features in these cases is the anesthetic. I have found that patients suffering from this disease bear general anesthesia less well than almost any other surgical cases. I am glad that the point was made of holding the parts in correction during sleep. That is important not only in this, but in all other conditions involving the lower extremities. The weight of the bed covers at night has a tendency to cause relapse of the deformity after correction in nearly all deformities of the lower extremity, and a carefully made night shoe or night apparatus is necessary in all cases.

Dr. Walter G. Stern, Cleveland: I agree with Dr. Packard that we must be careful not to overdo the correction. That is why I said that in lengthening the Achilles tendon, it is preferable to do an open tendon lengthening, in which we can accurately measure the amount of lengthening that we wish to make. The question of night bracing has puzzled me. Most children with this disease are not of high intelligence, and

they do not bear well the application of rigid braces at night time. We must either fight with all the people around the hospital or lessen the bracing at night.

Of late years, we have been giving gas anesthesia and blocking the cord after we get to the dura by putting in procain. Most spastic cases will show tremor, etc., when first going under the anesthetic; but if the anesthetic is given by an expert anesthetist, these children take anesthesia as well as any one. In Ohio, we have not had very serious epidemics of infantile paralysis. It is my experience that, in comparison with this disease, I see a relatively high proportion of spastic cases. There is hardly a day passes that I do not see a new case of spastic paralysis. The condition is more frequent than is usually believed, because the general practitioner does not recognize it.

DR. JOHN RIDLON, Chicago: What is your guide to the operation on the Achilles tendon?

DR. STERN: My guide is the desired position of the foot. Of course, you can get the same result by doing a subcutaneous tenotomy and putting the foot up in plaster in a right angle positon. But we have the fixation reflex there, by which the muscle is made to contract; and in doing a subcutaneous tenotomy alone, the contraction will pull up the severed end of the tendon too far. In the Achilles tendon, one can do an open tendon lengthening and suture the tendon at just the amount of connection one wishes to get.

DR. RIDLON: I do not know just how much you get.

DR. STERN: That depends on your judgment. I do not correct much beyond a right angle. I had some sad experiences, and found, as Dr. Packard did, a paralytic calcanous resulting. I thought that the method was not so much in fault as my own judgment, therefore I put the foot up in a lesser angle. On visiting the clinics of Chicago, I found that many men there use the open operation; and in trying that, I found that it was much more accurate as to the amount of lengthening, and I have had no bad results since.

STREPTOCOCCUS PNEUMONIA AND EMPYEMA

AN INFECTION AFFECTING EIGHT MEMBERS OF ONE FAMILY WITH SEVEN DEATHS

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C. B. LUGINBUHL, M.D.
DES MOINES, IOWA
AND
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VALLEY JUNCTION, IOWA

In connection with the report of Miller and Lusk,[1] based on an epidemic of streptococcus pneumonia and empyema at Camp Dodge from March to May, 1918, we wish to report a similar infection affecting eight members of one family with seven deaths, occurring in the city of Valley Junction, which adjoins Des Moines, and is about 17 miles south from Camp Dodge.

These cases developed at the same time as the outbreak of the disease at Camp Dodge. The family consisted of the father, the mother and seven children ranging in ages from 4 to 24 years. The first member of the family to be taken ill was a son, aged 18 years, who manifested the first symptoms, March 26, 1918, and died three days later; the father, aged 46, and three children, aged 4, 15 and 21 years, respectively, became ill, March 29, 1918, one dying, April 1, two, April 3, and one, April 4. The clinical diagnosis of the first five cases was acute pneumonia. Two sons, aged 8 and 24 years, were taken sick, March 30, the first dying, April 7, and the second, April 15.

In each of the last two cases a left empyema developed, and aspiration on the exudate formed a part of the treatment.

April 2, a daughter, aged 12 years, was the eighth member of the family to become ill, and the only one to survive.

The acute pneumonia terminated in a left empyema, the exudate being removed by aspiration at first and later by rib resection and drainage, the discharge persisting for three months. The corresponding lung contracted and obliterated to a large extent.

The mother was apparently not ill at any time.

A postmortem examination was permitted in only two of the cases, being made by one of us (Dr. Luginbuhl) April 3, 1918, on the father and the 4-year-old daughter. The anatomic changes were identical in the two instances: a bronchopneumonia more than a lobar type, with a seropurulent exudate in the left pleura, and a fibrinopurulent pericarditis. These changes correspond to those described by MacCallum[2] in the Camp Dodge epidemic.

While the bacteriologic examinations were very incomplete, the etiology was evidently identical in the eight cases.

Cultures obtained from the exudate in the two necropsies produced a growth of the *Streptococcus hemolyticus*, and a similar micro-organism was isolated from the pus obtained by drainage in the last case of the series.

There were no definite predisposing conditions to be determined in these cases, except the insanitary surroundings in which the family lived. A preceding infection, such as a measles or tonsillitis, was not present. Each case was characterized by a sudden onset.

It will be noted that the virulence of the infection was more marked in the first five cases, there being a longer period of illness in the next two fatal cases, while the last patient of the series recovered.

The similarity between the cases reported herewith and those of the Camp Dodge epidemic suggests a common infective agent with variable degrees of virulence.

1. Miller, J. L., and Lusk, F. B.: Epidemic of Streptococcus Pneumonia and Empyema at Camp Dodge, Iowa, THE JOURNAL A. M. A., Aug. 31, 1918, p. 702.

2. MacCallum, W. G.: Pathology of the Epidemic Streptococcal Bronchopneumonia in the Army Camps, THE JOURNAL A. M. A., Aug. 31, 1918, p. 704.

Legislation for Physical Training.—In an article on "State Legislation for Physical Training," Dr. Thomas A. Storey, inspector of physical training for the state of New York, shows that since May 15, 1916, seven states have enacted school physical training laws. These states and the dates of the legislation are as follows: New York, May 15, 1916; New Jersey, Feb. 13, 1917; Nevada, March 21, 1917; Rhode Island, April 19, 1917; California, May 26, 1917; Maryland, March, 1918; Delaware, April 10, 1918. Illinois passed a law, June 26, 1915, but no financial provision was ever made for carrying it out. The program in New York requires six hours a week of physical training for every pupil above the age of 8 years in all elementary and secondary schools. In New Jersey the required training time is at least two and one half hours in each school week. In Nevada the carrying out of the law is assured by a tax of 5 mills on $100 of assessed valuation of all the taxable property of the state. In the other states appropriation of certain sums is made by the legislature. In California the time requirement in the elementary schools is twenty minutes each school day, and in the secondary schools at least two hours a week. Similar legislation has been proposed and considered in other states.

Military Medicine and Surgery

CERTAIN RESIDUALS OF EPIDEMIC CEREBROSPINAL MENINGITIS OBSERVED IN THE ARMY

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In the period from December, 1917, to February, 1918, a number of cases of epidemic cerebrospinal meningitis developed at Camp Beauregard, La. The patients were treated with specific serum administered both intravenously and intraspinally, and a number of them made uneventful recoveries from the infection. After a four or five weeks' period of convalescence in the base hospital at the camp they were as a rule granted a sixty days' furlough at home. On return from their furlough some of the men were found still to have certain residuals owing to which they were unable to go back to duty. Others did go back to duty but were found within a few days to be unable to perform it. All such patients were therefore readmitted to the base hospital. After a further period of from five to eight weeks' treatment and rest in the hospital they were still not in condition to go back to duty, and eighteen of them were on July 29 transferred to U. S. Army General Hospital No. 30, Plattsburg Barracks, N. Y.

At various other times and from other camps eight other postmeningitic patients were received at this hospital, and thus a rather unusual opportunity presented itself of studying the residuals of epidemic cerebrospinal meningitis.

In the past ten or twelve years a great deal has been published on the subject of epidemic cerebrospinal meningitis; but these publications have dealt almost exclusively with the acute phases of the disease, its bacteriology, modes of transmission, prophylaxis and specific therapy, and not with the residuals.

The cases that have thus come to our attention present a striking and fairly uniform syndrome made up of the following elements, given here in the order of their frequency:

1. Limitation of flexion of the spinal column.
2. Undue fatigability.
3. Pains in back, legs and head.
4. Tendency toward dizziness and faintness.
5. Muscular weakness.
6. Tendency toward blurring of vision associated with photophobia.
7. Impairment of appetite and sleep associated with a state of undernutrition.

The limitation of flexion of the spinal column is shown in all cases by inability to stoop over far enough to touch the toes with the tips of the fingers without bending the legs at the knees. One or two of our patients, on arriving at the hospital, were able by special effort to come within 6 inches, but most of them could not come within a foot, and one could stoop but very slightly. All have told us that prior to their attack of meningitis they had been able to do this, and some had been able to stoop far enough to place the palms of the hands on the ground.

The limitation of flexion is further shown in the cervical region by the patients, in the majority of cases, being unable to flex the head on the trunk so as to touch the sternum with the point of the chin—which most people normally can do. Some patients cannot come within 2 inches of touching.

Undue and unwonted fatigability is present in all cases, although it varies a good deal in degree. In one case, going up a flight of stairs or a short distance up hill or a few blocks even on level ground results in getting out of breath, palpitation, weakness, trembling, aches in the back and legs, and a feeling of exhaustion. In another case, the fact of undue fatigability is to be noted only by comparison with former endurance or with the endurance of other men in the organization.

Pains in the back, legs or head are present in all cases. In some cases it is constant and so severe as to make it impossible to maintain with comfort any position for more than a few minutes. In other cases it is slight or only occasional, or develops only on stooping or exertion. The favorite locations are, in order of frequency, the small of the back, the back of the head and upper part of the neck, the legs behind the knees, and the back between the shoulder blades. In some cases there is tenderness to deep pressure, and in one case the head is so sensitive that laying the hand lightly on top of it causes an increase of pain. In two cases there is great soreness in the tip of the coccyx, the patients having to sit either on one buttock or the other.

A tendency toward dizziness and faintness is present in almost all our patients, but also varies in degree. In some cases any sudden movement starts things whirling or causes black spots to come before the eyes, while severe or prolonged exertion causes the patient to become faint, lose consciousness, and fall; at least one of our patients had come to us with a transfer card diagnosis of "epilepsy following meningitis." In the milder cases even severe exertion brings on only slight or momentary dizziness. Stooping more than other movements excites this symptom. Arising from bed in the morning often brings it on. It develops more readily in the unshaded sunlight, especially on a warm day.

In the headaches, dizziness, faintness and losses of consciousness, and in the fact of these symptoms being especially apt to be brought on by exertion, stooping, sudden movements, or exposure to the sun, the postmeningitic condition closely resembles the well known condition that persists for years following severe cranial traumatisms.

Muscular weakness, as existing independently of the fatigability and of the pains, is shown particularly by feeble hand grips in more than half of our cases. Usually both grips are weakened, but often in an unequal degree. One patient, in other respects having a rather mild case, formerly as "strong as a tiger," is hardly able to turn the faucets in the lavatory.

The tendency toward blurring of vision is very common but also variable in degree. It becomes manifest when patients attempt to read, especially if the print is fine. After a few minutes or half an hour the letters begin to "run together;" if the patient rests a while he can continue the reading, but unless he has rested an hour or more the blurring will come on again more quickly than the first time.

It would seem that this trouble is due to a weakness of the ocular muscles; in some cases close application brings on diplopia; the ocular movements, however, as ordinarily tested, are as a rule not impaired. In those

cases in which the tendency to blurring of vision is most marked there is also a degree of photophobia; at least two of our patients have had to wear smoked or colored glasses. In these cases there is sluggishness and limited excursion in the pupillary reaction to light; moreover, on continued exposure to bright light, the initial contraction soon gives way to relaxation; and it may be that the photophobia is dependent at least in part on weakness and fatigability of the concentric muscle fibers of the irides with resulting lack of shielding of the retina.

The impairment of appetite and sleep, sometimes associated with a state of slight subnutrition, is perhaps a secondary phenomenon. Many of our patients were formerly leading active outdoor lives, but have since been forced by their illness to remain almost wholly without exercise for months. The loss of sleep is almost invariably associated with pain; in some cases the patients have difficulty in getting into a comfortable position for sleep and toss around for hours before finally falling asleep; others fall asleep quickly, but wake up in the night on account of pain developing from the strain of being in one position.

Our cases have shown very considerable variation in severity of the symptoms and degree of disablement, as compared with one another, but not in the syndrome considered qualitatively. The quantitative variations seem to depend in part on severity of the original infection, or possibly the patient's resistance to it, and in part on the length of convalescence. The usual course is characterized by a very pronounced degree of disablement at the beginning of convalescence, progressive improvement for about a month or six weeks under rest without special treatment, and from then on an almost stationary residual condition persisting apparently indefinitely—in our cases from three months to over a year thus far.

Shortly following the admission of these patients to this hospital they were divided into groups, according to the degree of disablement and were placed under a regimen of graded hikes and exercises, such as neck bending and body bending. This was followed by striking and rapid improvement in some cases and in distinct though slight improvement in almost all within a month. Several of the patients can now bend over and touch the toes with the tips of the fingers without strain or pain and without getting a headache or becoming dizzy; their endurance has increased; and one of them took part in a lively game of baseball lasting more than an hour, and then felt fit to play another one.

It is, of course, too early to tell whether or not these patients, or any of them, can be completely restored; but our experience has already shown that in practically all of them the condition, which remains stationary for months under mere rest, can be confidently expected to improve at least to a certain extent under graded hikes and exercises.

Some explanation is perhaps due for presenting our observation in so unfinished a form. Our justification lies in the urgency of the practical problems that are involved. Almost in every cantonment in the country cases of meningitis have occurred since the beginning of mobilization. The postmeningitic syndrome has apparently received very little recognition, and only the more severely disabled cases have forced themselves on the attention of medical officers who have disposed of them in one way or another as cases of hysteria, neurasthenia, "psychoneurosis following meningitis," "neurosis due to lumbar puncture," neuritis, etc.

It seems to us not unlikely that many patients that have been returned to duty and even sent overseas might, on examination by one familiar with this syndrome, be found to be really incompletely restored and hardly fit for duty. In such cases it would be obviously in the interest of both the patients and the government to institute the necessary treatment prior to returning the soldiers to duty.

Perhaps the simplest way of meeting the situation would be by ordering the transfer of all patients with epidemic cerebrospinal meningitis, on their recovery from the infection, to some one designated Army hospital for convalescence and such further observation and treatment as they may require.

THE MEDICAL ORGANIZATION OF THE ITALIAN ARMY

THE NEUROPSYCHIATRIC SERVICE

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Dr. Heiser,[1] last January, gave a thorough and valuable account of the military medical organization at the Italian front. Although the article had been written before the Italian retreat of October, 1917, during which much material was lost and three quarters of the medical units had to undergo considerable changes, yet the medical service at the front in its efficiency remains as Dr. Heiser described it. There are about 700,000 hospital beds within the zone of the armies, but their localization must not be revealed.

The medical service outside the zone of the armies is under the direction of the Director-General of the Army Medical Service, who is attached to the war office and whose position corresponds to that of Surgeon-General in the United States Army. He controls the so-called reserve hospitals, which are scattered all over the kingdom. Aside from these there are also other hospitals called territorial (about 160 in all, with a total of 30,000 beds), which are under the direction of the Italian Red Cross. There were in Italy, in the spring of 1918, 1,250 hospitals, including those of the Red Cross, with a capacity of 330,000 beds. These, added to the 700,000 beds existing within the zone of the armies, make the total military hospital capacity of Italy more than a million beds.

Considering that the area of Italy is 110,623 square miles, if we deduct the two provinces invaded lately and the others included in the zone of the armies (about 20,000 square miles), there are in Italy, aside from the 700,000 beds within the war zone $3\frac{2}{3}$ beds per square mile.

Under the Director-General of the Army Medical Service are twelve colonels of the medical corps, each attached to an army corps and with jurisdiction over the hospitals within his army corps. Nominally there are twelve army corps, numbered from one to twelve, but practically there are eleven at present, as the fifth (Verona), being in the zone of the armies, is not controlled from the war office, but by the general staff.

The 1,250 hospitals have been distributed among the eleven army corps, according to the distance of the

1. Heiser, V. G.: Some of the Accomplishments of Italian Medical Men in the War, THE JOURNAL A. M. A., Jan. 5, 1918, p. 24.

corps from the battle front, the building and transportation facilities and the climate. So in the district of the fourth army corps (Genoa) there are 241 hospitals (with twenty beds per square mile), because almost all the hotels of the Italian Riviera were taken over by the government and transformed into convalescence homes and hospitals, the climate of the Riviera being suitable for patients suffering from tuberculosis and other exhausting diseases. In the districts of the Second, Third and Sixth Army Corps (Alessandria, Milan and Bologna), which are located nearer to the battle front, there is an average of 7, 6½ and 5⅓ beds per square mile; while in the district of the Twelfth Army Corps (Sicily), which is far front the front, there is less than one bed per square mile. The effectiveness of Italian base hospitals has been greatly increased during the last few months. In the single district of Milan there are 53,000 beds, against 37,000 beds in November, 1917.

In each army corps district there is a hospital called "principale," with which all the others are connected. A colonel or a lieutenant-colonel of the Medical Corps is at the head of the "principale," while the other hospitals are directed by a major or a captain, according to the number of patients. Most of the hospitals are for general patients, but many are reserved for certain classes of patients. In the matter of specialization, one is impressed with the number of categories and branches which have been installed and are successfully operated notwithstanding the difficulties and emergencies of the present time. The specialized hospitals include medical, surgical, ophthalmic, trachomatous with secretion, trachomatous without secretion, neurologic, orthopedic, infectious, contagious, psychiatric, stomatologic, venereal, dermatologic, otologic, isolation, malarial, tuberculous, crippled, climatic, convalescent, invalids', autolesionist,[2] diagnostic for tuberculosis and medicolegal, and there are schools of reeducation for the blind, agricultural schools for invalids, etc.

THE NEUROPSYCHIATRIC SERVICE

The Neuropsychiatric Service is one of the best services in the Italian army. Italy, having entered the world war nine months after the other allies, had time enough to study all the problems connected with the medical organization and was in a position to avail herself of the experiences of the other nations. While in France the Neuropsychiatric Service as a special unit was organized a long time after the war broke out, in Italy it started with the war. Moreover, Italy led the other nations in creating the so-called advanced neuropsychiatric sections, which are first line hospitals or sections of field hospitals, where the neuropsychiatric patients are first taken for diagnosis, distribution and eventual treatment. These advanced neuropsychiatric sections of the armies originated in Italy in September, 1915, three and one-half months after Italy declared war, after a short experimental period. In France, where the Neuropsychiatric Service has now reached perfection, it was not until April, 1916, that a committee composed of Drs. Chaslin, Colin and Truelle, chosen by the medicopsychologic society of Paris, proposed and obtained the creation of similar sanitary sections.

In order to give an idea of the whole Neuropsychiatric Service of the Italian army, distinction must be made between the neuropsychiatric service in the zones of the armies, and the psychiatric and neurologic services outside the war zone.

The entire Neuropsychiatric Service is under the supervision of Dr. Tamburini, professor of psychiatry at the University of Rome, who is the consulting psychiatrist general to the war office.

1. *The Neuropsychiatric Units in the Zones of the Armies.*—These are mixed formations composed of:

(*a*) Advanced Neuropsychiatric Sections: These, as stated, are located in the first lines, either as wards of field hospitals or as separate hospitals. They have a limited number of beds, ranging from ten to 150. The neuropsychiatric patients are sent there either directly from the firing lines or from other field hospitals. A first examination separates the mild cases from the serious ones. The former patients are kept there and treated for a short period of time, after which most of them recover and are sent back to their regiments, save a few who require further observation or treatment, and these are sent to the neuropsychiatric center of the respective army. The latter are sent directly to the nearer neuropsychiatric center, after all the important anamnestic data, the clinical history and a provisional diagnosis have been obtained.

(*b*) Neuropsychiatric Centers of the Armies: These are units, one for each army, located in the rear, usually in the same town where the director of the Army Medical Service of the army resides. They occupy large, modern hospitals fitted with apparatus for diagnosis and physical therapy, where patients sent from the advanced neuropsychiatric section are received and submitted to a more accurate and rigorous examination. Here those functional cases, emotive, confused, etc., which, if transferred directly to reserve hospitals outside the war zone, as it was customary at the beginning, would become chronic, are treated until the patients are fit for service again. Those suspected of malingering are kept under strict observation until they are exposed or found mentally affected, in which case they are either recommended to a board of survey for medicolegal decisions, or are sent with the other serious cases to the reserve psychopathic hospitals outside the war zone. This occurs only when all means of treatment have failed and when the diagnosis of psychoses or organic neurologic lesion requiring long treatment is made. Recently, after the creation of the distribution center of Reggio Emilia, it was decided that all such cases should be directed to this center, for whatever decision.

The whole neuropsychiatric service of the zones of the armies is under the direction of neurologists and psychiatrists (one for each army) of unquestionable merit, chosen from among the best in the service, who have been connected for many years with neuropsychiatric clinics of the universities. A staff of trained neurologists and psychiatrists is attached to each neuropsychiatric center.

2. *The Neuropsychiatric Service Outside the War Zone.*—While the neuropsychiatric units at the front are mixed formations, a condition dictated by emergency and practical reasons rather than by scientific ones, the units outside the war zone are either neurologic or psychiatric. These include reserve military hospitals, university clinics and asylums, and constitute (*a*) the psychiatric sections and (*b*) the neurologic centers.

(*a*) The Psychiatric Service: This deals with two kinds of patients: (1) Psychopaths requiring further

2. Autolesionist refers to those who practice malingering by self-mutilation.

clinical observation or treatment or medicolegal decision, and (2) psychopaths that have to be interned in asylums or state hospitals. For practical purposes it has been decided to send the psychopathic soldiers to the hospitals nearest their birth places. This disposition facilitates a great deal the task of the psychiatrists in collecting all the necessary anamnestic data directly from the families of the patients, and enables the patients to live in their own environment, climatic and social. Those under observation remain there for a period of time not less than three months before they are discharged from the army and sent to state hospitals, of which there is one in each of the sixty-nine provinces of Italy. The psychiatric service outside the war zone is done in part by medical officers and in part by civilian psychiatrists, the chiefs of university clinics and asylums, who on account of their old age cannot be in active service. Towns where psychiatric sections are located are: Padua, Verona, Turin, Genoa, Parma, Alessandria, Reggio Emilia, Bologna, Ancona, Imola, Florence, Arezzo, Lucca, Siena, Perugia, Rome, Aquila, Bari, Catanzaro, Naples and Catania.

A distribution center for all the psychopaths from the war zone has been recently located at Reggio Emilia. This center is composed of five sections having a total capacity of 1,600 beds, of which 150 are for officers. One section is for general cases requiring observation and medicolegal decision; another is for the observation and distribution of all cases of hysteria, neurasthenia and epilepsy; another is a convalescent home for neurotics who had preliminary treatment elsewhere within the war zone, insufficient, however, for the complete restoration of their mental and nervous functions. The American Red Cross contributed generously in supplying this recent formation with medical and surgical material. In a recent editorial of an Italian paper of Reggio Emilia, high praises are paid to the American Red Cross and its medical director, Dr. Joseph Collins of New York, who, being a neurologist himself, takes great interest in this matter.

A plan is under consideration to create special hospitals for the degenerates, perverted and amoral, whose number is increasing among soldiers, not as a product of the war, but because, in the rush for enlistment, the psychologic investigation of the recruits is usually neglected. These subjects are discovered later on and brought to the attention of the medical officers, who at present cannot dispose of them, although they know by experience how dangerous they are to the community.

(*b*) The Neurologic Centers: There were in Italy before the Austro-German drive of October, 1917, eight neurologic centers modeled on the French system. Since that time the center of Treviso has been suppressed, owing to its proximity to the Piave line, and three new centers were created on account of the increasing number of neurologic cases. Actually the neurologic centers are distributed as follows:

Milan, which is a distributing center for the organic cases coming from the battle front of the fifth and first armies. It is the largest one, composed of several hospitals for a total of more than 1,000 beds.

Pavia, 600 beds. This center is under the direction of the histologist Camillo Golgi, who went from the laboratory to give his valuable service for the solution of social problems arising from the war, and to devote himself to the present and future welfare of those wounded soldiers affected with organic neurologic lesions, who, without having lost limbs in the anatomic sense, have lost their function. These men, like the anatomically mutilated, have sacrificed their limbs. Physiologically they are crippled also, and deserve the same credit and help from their country as those who have had one or more of their limbs amputated; therefore, he called them the "functionally mutilated."

The other centers are: Genoa, 200 beds; Bologna, 300; Siena, 500; Ancona, 280; Rome, 310; Naples, 600; Bari, 150, and Catania, 250.

All these centers are equipped with modern apparatus for electromechanotherapy and diagnosis.

A notable innovation, which started in Milan and is proving most successful, is the institution of special occupational classes for the neurologic patients. These are by no means real schools for reeducation. Their scope is to furnish those patients who are able to do something during their period of treatment with a light occupation which, without tiring them, keeps them psychically active. For those patients who have either organic or functional disorders, the manual work, conveniently chosen and applied, is a wonderful therapeutic procedure, either from the point of view of the motor reeducation of the nervous and muscular system, or from the point of view of psychic reeducation of will. In many functional diseases of the nervous system, in which aboulia and psychic depression are prominent features, working is a splendid stimulus to rewaken and keep alive the individual energies and activities, which otherwise would be lost forever, and any later attempt for reeducation would prove either useless or a most difficult task.

WORK ACCOMPLISHED

It would be out of the field of this article to speak at length of the wonderful work done by the Italian psychiatrists and neurologists during this war; but I will give a few data.

There are about 20,000 patients, soldiers and officers, who are admitted in a year to the psychiatric and neurologic reserve hospitals. This number does not include those successfully treated in the neuropsychiatric sections and centers of the armies. The latter units have proved of great value in reducing the number of permanently unfit by preventing, with appropriate and timely treatment at the front, many of the sensorimotor psychoneurotics from becoming sensitivemotor neurotics, which would mean the definite loss of the patient to the army.

V. Bianchi, consulting neurologist and psychiatrist of the Second army, reports that of a hundred patients sent to his department, 50 per cent. were able to return to service after a short period of treatment or furlough. Of the remaining 50 per cent., one third had to be sent to psychopathic hospitals, but only one half of these were declared insane and ultimately sent to an asylum. The other two thirds were declared temporarily or permanently unfit for service, which means that they were either discharged from the army or sent to the centers outside the war zone for medicolegal decisions.

The problem of dealing with the neuropsychiatric invalids of war is one of capital importance. So far it has been given due attention in Italy. Aside from the help which the government has been given to this matter, a committee for war invalids has been organized in Rome with the purpose of assisting in every

possible manner those soldiers who have cerebral, spinal and peripheral nerve lesions, and especially those who because of unusual and violent emotions reported in battle became functionally mutilated, namely, the invalids of the nerves, of the sight, of the hearing, of the speech and of the mind.

37 West Fifty-Fourth Street.

CHRONIC SKIN AFFECTIONS IN THE SOLDIER

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My object in this paper is to point out the importance of looking for skin lesions, particularly those of a chronic nature, when examining men for the Army. From an examination of almost 8,000 men at the mustering office, and from a large experience in the dermatologic wards of the base hospital, I have been impressed by the potential and actual loss to the military service in accepting men who are suffering from chronic or recurrent dermatoses.

There are many types of skin affections which in ordinary civil life are of comparatively little significance. Many men go through life with these troubles without suffering any great inconvenience. When these men enter the Army, however, and are subjected to the physical and mental strain incident to Army life, they begin to have an aggravation of their trouble. They soon become incapacitated for work, and are sent to the infirmary or hospital for treatment. Many of these patients improve under rest and proper care, only to relapse soon after their return to duty. A sick or disabled man is a tax on the military organization. He cannot work; he requires medical attention; and to that extent he is a liability rather than an asset.

The accompanying table gives the various types of dermatoses as found among approximately 8,000 white men within a few days after their arrival at Camp Lee. Incidentally, this table also gives the number of men found with open syphilitic lesions, such as chancres, mucous patches and condylomas.

DERMATOSES AMONG EIGHT THOUSAND MEN

Acne keloid	1	Ichthyosis	8
Acne pustulosa	75	Lupus vulgaris	1
Acne rosacea	1	Parapsoriasis	1
Alopecia areata	8	Pediculosis corporis	1
Cysts, sebaceous (scalp)	3	Pediculosis pubis	3
Canities	2	Pityriasis versicolor	109
Dermatitis venenata	1	Psoriasis	40
Eczema, chronic	16	Purpura	2
Eczema, seborrheic	18	Scabies	20
Erythrasma	2	Syphilis (open lesions)	125
Folliculitis	11	Trichophytosis corporis	3
Erythema multiforme	4	Ulcer, varicose	2
Lipomas	4	Urticaria	5
Herpes zoster	2	Urticaria pigmentosa	1

Many of these diseases are of little significance from the standpoint of military service; but eczema gives considerable trouble, particularly if it affects the lower extremities. Among the men examined are many who give a history of chronic eczema, but who do not show any active manifestations. Active military life causes a return of their trouble, and they are then sent to the hospital for treatment.

REPORTS OF CASES

CASE 1.—C., admitted to the hospital after being in service twenty-four days, gave a history of repeated attacks of papulovesicular eczema, which began six years before. On admission he presented an acute vesicular and weeping eczema of both feet, while on both hands there was a diffuse papulovesicular eruption. As the result of treatment, the inflammation gradually subsided after six weeks at the hospital. This man has now returned to duty, but will probably have a recurrence of his trouble.[1]

CASE 2.—F. had had attacks of eczema for the past three years, particularly in the summer time. The present trouble began after being in service six months. A papular eruption appeared on the dorsum of both hands, and then spread to the arms and trunk. The patient was treated at the infirmary for two months, but the condition became worse. He was then admitted to the base hospital and discharged as improved after two weeks. Ten days later he was readmitted. On admission he presented a generalized erythematovesicular eczema that covered practically the entire body except the face and scalp. Some parts of the body, as the groins and axillary regions, showed considerable weeping. After more than two months of treatment there was only a moderate amelioration of the disease, and the patient had to be recommended for discharge from the service.

CASE 3.—K., admitted to the base hospital after being in service about two months, gave a history of general pruritus and eczema of the right leg for the past ten years. The itching and inflammation would subside somewhat during the winter, but would become aggravated again with the approach of summer. The present attack began about three weeks previous to admission with a papular eruption on the hands and the body. On admission the patient presented a vesicular eczema of the face, neck and ears, while in the right popliteal space there was a thickened, red, scaly patch of chronic eczema. Both legs showed numerous excoriations as the result of scratching. The arms and trunk showed numerous erythematous and scaly patches. After prolonged treatment with very little benefit the patient was finally recommended for discharge from the Army.

CASE 4.—Y., admitted to the hospital after two months' service, presented an interesting family history in that his mother, two brothers and one sister were suffering from a similar skin disease. The patient had had trouble with his hands and feet since he learned to walk. Large blebs would form on the palms and soles as the result of mechanical pressure. These lesions were present when the patient was mustered into service. After doing military duty for a few weeks, his condition became so painful that he was sent to the hospital for treatment. On admission the soles and palms showed a squamous condition as the result of the previous bleb formations. There was also a moderate hyperkeratosis of both plantar surfaces. While under observation at the hospital several new blebs have appeared on soles with very little inflammatory reaction. They heal without any atrophy or scar formations. The patient has now been in the hospital about six weeks without any marked benefit.

CASE 5.—McD. had been in the service one month when admitted to the base hospital. Several members of the family had the same trouble. On admission he presented a marked hyperkeratosis of the soles of both feet and several deep fissures extending through the skin into the subcutaneous tissues. Walking was quite painful. Several weeks of treatment have thus far proved of little benefit. It is clearly evident that this man will never make a soldier, particularly as his condition has existed now for many years.

The histories of these and many other patients show that they are very difficult to cure permanently, and they will ultimately have to be sent home.

CONCLUSIONS

1. Chronic skin diseases, and particularly chronic eczema, are very resistant to treatment, and usually incapacitate men for military service.

1. The patient returned to the hospital after being out six days. His condition is just as bad as it was at his first admittance, and he will have to be discharged for physical disability.

2. Examining boards should inquire into the past history, and be on the lookout for evidence of chronic eczema particularly.

3. Men with chronic dermatoses should be placed under observation before they are mustered in. Should they prove incurable, they can then be rejected. This, in my opinion, would be much simpler than discharging them after they have been inducted into the service.

AN INTERESTING REACTION TO LOUSE BITES*

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Although the clothes louse is a known carrier of typhus and recurrent fevers and has recently been shown to be a carrier of trench fever, I am not aware of any published evidence that it may produce an illness due to a toxin or toxins introduced by its bite. Observations made while attempting to raise large numbers of lice for experimental purposes during the spring of 1918 appear to show that such an intoxication may result in persons bitten by large numbers of lice. The account given here is not presented as positive proof that such is the case, but rather to make available for other workers a record of our experiences.

Experiments were begun on the louse problem in the spring of 1917, with lice collected from the clothing of men in a municipal lodging house. They were kept in an electric incubator, heated to from 28 to 30 C. (82.4 to 86 F.). At first, attempts were made to feed them on rabbits, guinea-pigs, monkeys and pigs; but they refused to feed on either the rabbit or guinea-pig, and while they attempted to puncture the skin of a young pig, they were unsuccessful. The lice fed on the monkey but did not appear to thrive, which fact, together with the difficulty of so securing the monkey that it was unable to interfere with their feeding, caused a discontinuance of these methods. A laboratory assistant then undertook to feed them on his arm. Local irritation from the bites made it necessary to invite others to assist in feeding the lice. The work was continued in this manner until August, 1917, during which time no one person fed the lice more than two or three times a week, and at no time were there more than 400 lice. Miss Anna Wentz then took up the work as my assistant, and continued it until December. She cared for and fed all the lice, although they did not exceed several hundred at any one time. From April until December, when the work was temporarily discontinued, the lice received but one feeding a day, but when further experiments were started, March 12, it was determined to feed them twice a day, thus securing conditions more nearly normal.

During March, so many lice were destroyed in the experiments that there were at no time more than fifty lice to feed. By washing the arm with 95 per cent. alcohol immediately after the feeding and then treating it with a mixture of one-half glycerin and one-half ammonia, the local irritation was reduced to a minimum. During April, the number of lice on hand increased, and the first sign of an intoxication due to their bites was noted. Miss Wentz describes her condition as that of being generally tired and with a nearly continuous, dull, steady and at times, very severe headache at the base of the skull. Later chills and fever (the chill occurring before the fever) set in, with symptoms very similar to grip. The fever lasted for three days, being highest in the afternoon; but unfortunately no record of the temperature is available. At this time, a rash developed over the neck and shoulders, while a number of small blisters were noted on the arm, where the lice were fed. This illness occurred between April 15 and April 30, the exact date not being recorded, since at this time we had not associated the illness with the bites of the lice. About April 20, I took over the feeding of the lice with the result that Miss Wentz improved in health, until by May 6 all symptoms had disappeared.

Whereas Miss Wentz had started feeding with a small number of lice which gradually increased, I started feeding about 700 to 800 twice a day. Almost immediately a general tired feeling was noticed in the calf of the legs and along the shin bones, while on the soles of the feet and underneath the toes this tired feeling was so intense as often to prevent sleep until late in the night. An irritable and pessimistic state of mind developed. May 7, an illness resulted with symptoms very similar to grip, and a rash similar to German measles was present, particularly over the shoulders and abdomen. As German measles were prevalent in the community at that time, it was considered German measles; and after remaining in bed for several days, I returned to work and again took up the feeding of the lice. The general feeling, previously noted, was present with increasing intensity. By May 15, the number of lice in our reserve stock had increased to about 1,200, and, May 28, I was again forced to remain in bed. The family physician was called and diagnosed the case as possibly grip. The next day he was again called, since a distinct rash was present all over the body. The rash was considered quite typical of German measles, but other symptoms of measles were absent. The heart was normal, the pulse about 90, and the temperature varied from 100 to 102. A blood count revealed a normal number of leukocytes and red corpuscles. A severe headache was experienced, accompanied with pains in the legs, not only along the shins, but also in the calf of the leg and the soles of the feet, while intense pain was present in all the joints of the body. The appetite was lost for several days, and the tongue was heavily coated. Dr. A. D. Hirschfelder, who has been assisting on the louse problem, saw me at this time and considered that it was not German measles, nor was it grip, but might be trench fever. Glandular enlargement was absent and no enlargement of the spleen was noted. Recovery was complete except for a general weak condition by June 4.

I again took up the feeding of the lice, June 6, with the hope of producing the symptoms again and deciding if the illness was really caused by the lice and, if possible, whether it was trench fever. The lice numbered about 800 adults, which gradually died off while young lice hatched from the eggs, until by June 22 about 1,800 young lice were being fed. During the early period between June 6 and 15, no lassitude was noticed, but from about the 17th on, it gradually returned as the number of lice increased, until the 27th and 28th, when it was pronounced. On the 29th, I was feeling so miserable that it was a decided effort to

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get up in the morning and again feed the lice. The symptoms were the same as in the two previous illnesses. If the illness was due to the organism of trench fever, a day or two spent in the open with plenty of exercise would hardly prevent the attack, but if it was due to a toxin or toxins, it might be possible, by plenty of fresh air and exercise, to throw off the toxins and escape the attack; hence, the 29th and 30th were spent in the open, rowing and fishing. During the 29th, the symptoms were still quite pronounced, but gradually disappeared on the 30th, although a general tired feeling persisted for several days. Since that time, the lice have not been fed, and two weeks in July were spent on a vacation in the open. The result has been the total disappearance of the peculiar tired feeling in the legs and feet and a return to perfectly normal health.

CONCLUSION

The foregoing is suggestive that the clothes louse, if present in large numbers, may produce an illness, which appears to be an intoxication of the system with some toxin that they are capable of introducing at the time of feeding. It is also suggestive that some of the symptoms of trench fever encountered in certain cases may not be due to the organism of trench fever, but to certain toxins introduced by the lice.

University Farm.

AN APPARENTLY PRACTICAL METHOD FOR THE ISOLATION OF PFEIFFER'S BACILLUS FROM SPUTUM *

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During preliminary investigations in the present epidemic, the isolation of *B. influenzae* from sputum was found to be a difficult task when the usual routine procedure of plating on human blood agar was followed. The difficulty in isolating by this method is due to the fact that other organisms, such as pneumococci, staphylococci and *Micrococcus catarrhalis*, tend to obscure the colonies of influenza bacilli and overgrow them. Therefore it can be readily seen that in most instances the element of chance in isolating the influenza bacillus by blood agar plates alone is great and the whole procedure uncertain.

In 1903, Cantani[1] reported the interesting observation that bile did not destroy the virulence of influenza bacilli. Cultures of these organisms and bile simultaneously introduced into the peritoneum of guinea-pigs invariably killed the animals. It occurred to me to use bile or bile salts because of the dissolving action of bile on pneumococci and its inhibitive effect on other accessory organisms. Sodium taurocholate was used in a strength of 0.5 per cent.

Bronchial secretions were mixed with the taurocholate solution, and the mixture was allowed to stand for at least twenty minutes and longer. After exposure, streaks were made on human blood agar plates. The method proved satisfactory, and after twenty hours' incubation at 37 C. (98.6 F.) minute, colorless, transparent droplet-like colonies were easily detected and differentiated.

The organisms stain nicely with aqueous fuchsin and measure about 0.5 or 0.6 micron by 0.2 or 0.3 micron. They are gram-negative and form irregular clusters with no definite arrangement. They often give the appearance of *B. coli*.

Subcutaneous injection of washings from slants into mice proved fatal to the animals within six or seven hours. The bacilli were readily obtained from the heart blood of the animals.

Materials for the work were kindly furnished us by Dr. J. S. S. Gardner of the U. S. Marine Hospital, Cleveland.

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1. Cantani: Ztschr. f. Hyg. u. Infektionskr., 1903, **42**, 505.

PATHOLOGIC SIMILARITY BETWEEN PNEUMONIA OF BUBONIC PLAGUE AND OF PANDEMIC INFLUENZA

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Since the commencement of the present epidemic of influenza in New York City I have had occasion to investigate by necropsy at the Willard Parker and Bellevue hospitals twenty cases of death from pneumonia occurring in the course of this remarkable infection. The changes in the lungs are those of a variety of confluent lobular exudative and hemorrhagic pneumonia in which the naked eye and microscopic features bear such a resemblance to the lesions in the pneumonic variety of bubonic plague as to provide an interesting study in similarities. There are, however, several features which serve as differential safeguards in separating the two diseases on anatomic grounds. If these should be eliminated or projected into the background—as not infrequently they are—then, indeed, the sum of the reactions of the pulmonary tissues to the prevailing infection is so nearly equivalent to that of pneumonic plague as described and depicted by investigators in the Far East that, were it not for the aid of modern bacteriologic methods, the pathologist of this climate might be tempted to the conclusion that the world is facing a pandemic of pneumonic plague in which, contrary to rule, the mortality is relatively low, rather than a pandemic of influenza with unusually frequent pneumonic complications and a far higher mortality than that exacted by any previous eruption of the same disease. The captious critic might object that an otherwise harmonious comparison is violated by the projection of superficial buboes into the picture of pneumonic plague and their absence from that of influenza, to which it may be replied that the pneumonic variety of plague is seldom accompanied by those bubonic manifestations from which the disease takes its name and with which, erroneously, all of its several anatomic forms seem to be associated in the minds of most physicians resident in this latitude. As far, however, as participation of the deeper nodes is concerned, the extent and distribution of thoracic and abdominal adenopathies in both diseases bear out the analogy. Moreover, the similarity of the two diseases is enforced by the clinical features, which are remarkably alike in many respects, and by the pathology of certain tissues other than the lungs. However impressive these observations may be, it is

comforting to recall that the bacteriology of the prevailing pandemic is vouched for by a number of exceedingly able investigators, and that *Bacillus pestis* has found no place in their results.

In the greater number of all the cases of pneumonia associated with the prevailing epidemic, our experience at the Willard Parker and Bellevue hospitals is that the pleural cavities are free from excessive accumulation of fluid, only two exceptions having been found. In one of these the right pleural cavity was distended by cloudy, milklike fluid which had compressed the lung into an atelectatic mass scarcely larger than one's clenched fist, and the pleural was universally thickened. Obviously the empyema was one of long standing and had preceded the influenzal infection. In the second case, both pleural cavities were half filled with serofibrinous exudate, and the pleural membranes were extensively, although irregularly, obscured by collections of coarse, shaggy fibrin. In each of two other cases the pleura presented a localized, solitary patch of fibrinous exudate a few centimeters in diameter. In the remaining seventeen cases the pleurae were smooth, glistening and devoid of exudate. It is exceedingly important to note that, in this regard, the pathology of pneumonic plague is different from that of the existing pandemic influenza, Crowell, in twenty-five necropsies on subjects dead of plague in the Manchurian epidemic, having found extensive pleural exudates in every one.

The naked eye appearances of the lungs themselves, however, are highly suggestive, and, for descriptive purposes, may be thus grouped:

1. Cases with (*a*) extensive confluent lobular solidification of the lower lobes; (*b*) circumscribed or partially confluent consolidation of the lobules of the upper lobe, and (*c*) areas of acute vesicular emphysema. These cases without exception represented examples of rapidly fatal pneumonia.

2. More prolonged cases characterized by complete or almost complete consolidation of all or most of the lobes of both lungs, areas of acute vesicular emphysema occurring as an inconspicuous feature.

3. Those cases in which the pneumonic process is obviously subsiding.

THE ACUTE CASES

(*a*) The lower lobes of both lungs were always involved in company, never, in my experience, alone. The lower lobes were enlarged, heavy and extensively, often almost completely, consolidated. The involved areas presented a deep slate blue color mottled at intervals by slightly elevated pinkish or cream colored subpleural patches in which the inflammatory process had not progressed to its customary conclusion, or by areas of vesicular emphysema in which the dilated vesicles appeared as streaks or patches of minute, glistening, beadlike bodies. Petechial hemorrhages into the pleura or larger, splotchlike extravasations of blood were practically constant. As a rule, the extreme edges of the lung were spared by the solidifying process, the air vesicles undergoing, however, marked compensatory emphysematous changes. On section the substance of the lung cut readily. The cut surface presented a deep bluish or bluish black appearance, the substance was friable but less easily broken than that of the lung in croupous pneumonia, and the surface was of the smoothness of velvet, not a trace of fibrin being seen or felt. Scattered over the deep slate blue background were occasionally to be seen small, pinkish, granular-looking, firm patches in which, however, no suggestion of fibrinous granulations were apparent to the touch or microscopically. Pressure on the consolidated lobe released huge quantities of deeply blood stained serum in which there was a distinct milky tint due to the escape of leukocytic exudate from the vesicles. The cut ends of the smaller bronchi were sometimes to be distinguished by the escape of droplets of pus, oftener by frothy serum. The mucosa of the trachea and larger bronchi was greatly swollen, deep bluish red, and velvety, with an occasional grayish fleck of pseudomembrane lying on the surface. The peribronchial lymph nodes were markedly edematous and hyperemic, forming a mass around the root of the lung that sometimes attained remarkable proportions.

Microscopic examination of the deep bluish, firmly solidified portions of the lower lobe revealed the presence in the alveoli of huge numbers of red cells and polymorphonuclear leukocytes, either alone or in combination, and coagulated serum. Fibrin was absent. In many alveoli were quantities of large, rounded cells corresponding to desquamated vesicular epithelium. The interalveolar capillaries were intensely injected, as were those of the walls of the bronchi and bronchioles. The bronchioles were, for the greater part, filled by polymorphonuclear leukocytes, among which were clumps of desquamated epithelium.

(*b*) The upper lobes presented a somewhat different picture. The lowermost portions were divided into lobules of different sizes, some of them bluish and firm, others pinkish or reddish and less firm in consistency, while the uppermost parts and the extreme edges were markedly emphysematous and feathery. The microscopic changes in the solidified lobules varied, according to the degree of consolidation, from simple exudation of serum to distention of the vesicles by red cells or leukocytes or both. In other words, the pneumonic process in the upper lobes may be found in all stages of advancement, but the richly injected interalveolar capillaries and the frequent and abundant escape of red cells into the vesicles are apt to dominate the picture as a whole.

I shall not risk repetition in order to afford verification from an independent source of the similarity between the pulmonary changes in pneumonic plague and those of the prevailing pandemic of influenza as we have observed them at Bellevue Hospital. Suffice it to say that one has only to consult the admirable description of the lungs contained in Crowell's monograph[1] on plague, as he saw it in the Manchurian epidemic, to confirm the impression that the pulmonary changes in pandemic influenza are of the same essential variety, the constant pleural exudate in plague and the almost constant acute vesicular emphysema in influenza serving as the main points in the anatomic differentiation. Moreover, the colored illustrations that accompany Crowell's paper substantiate the resemblance to which I have ventured to call attention.

(*c*) The areas of acute vesicular emphysema so constantly to be found in association with the lobular pneumonia of pandemic influenza are of considerable clinical interest. For example, in two of our cases, rupture of distended air vesicles had taken place, probably near the apex of the lung, and the soft tissues in the supraclavicular spaces were crepitant with infiltrated air. In another case rupture had occurred,

1. Crowell: Philippine Jour. Sc., B, 1812, **7**, 203.

apparently in the vicinity of the root of the lung, since the soft tissues of the posterior aspect of the pericardium were permeated by myriads of emphysematous bullae varying in size from the head of a pin to that of a small marble. Gaseous particles extended thence into the soft tissues of the precordial area, downward toward the pericardial attachment to the central tendon of the diaphragm, forward into the retrosternal region, and thence through the upper aperture of the thorax into the neck and on to the lower portions of the face and downward into the subcutaneous tissues as far as the crest of the ilium on the left and the lower level of the costal slope on the right. In still another case, rupture had occurred directly into the left pleural cavity with the production of pneumothorax. In none of these cases was it possible for us to demonstrate at necropsy the actual point of rupture.

MORE PROLONGED CASES

In the Willard Parker and Bellevue Hospital necropsies we have several times observed almost complete consolidation of both lungs, particularly in individuals who had presented clinical indications of pneumonia for a relatively prolonged period. It was in two of these cases that the pleura presented localized patches of fibrinous exudate. In all of them the pulmonary substance was so extensively involved by the inflammatory process that the peripheral areas of vesicular emphysema were scarcely noticeable. In cases of this sort, also, the cut section of the lung sometimes showed pinhead sized or larger, rounded or irregularly outlined, grayish or cream colored bodies corresponding to confluent vesicular exudations of leukocytes, or there were areas in which, scattered over a considerable extent, the cut surface of the consolidated lung was marked by a network of grayish or grayish red lines surrounding deeply congested islands of consolidated tissue.

CASES IN WHICH PNEUMONIC PROCESS IS SUBSIDING

I have had an opportunity to study the lung in one case in which the pneumonic process was apparently subsiding. The patient was a man, about 30 years of age, who gave a history of having passed through a typical siege of influenzal pneumonia. He returned to work at an ill advised moment of convalescence and died suddenly. At necropsy the right side of the heart was greatly dilated and the muscle tissue was flabby. Both kidneys were large and congested, the tufts standing out as minute, reddish points. The spleen was enlarged and congested, weighing 275 gm. Both lungs were greatly increased in size. The upper lobes were emphysematous and feathery in consistency. The lower lobes were congested. In the lower lobe on the right side was a patch of consolidated tissue about the size of one's thumb, and similar but smaller areas were found to the extent of two or three lying in different parts of both lower lobes. These patches were deep bluish, firm, airless, and, on section, presented a perfectly smooth, velvety appearance, and quantities of semipurulent fluid could be squeezed from them. Scattered over the lower lobe, beneath the pleura, were several thumb-nail sized, pinkish patches, and it was observed that the pleura covering each of them was finely wrinkled. Evidently these patches represented areas in which the lung had undergone acute emphysematous alterations without complete loss of tone in the elastic fibrils, so that restitution was progressing. Microscopic examination of the solidified patches in the lungs revealed intense congestion of the interalveolar capillaries together with the presence in the air vesicles and smaller bronchi of dense collections of polymorphonuclear leukocytes. No red cells were apparent, and no fibrin.

Finally, I may be permitted to call attention to the occurrence of one instance in which the changes in the lungs of a soldier dead of influenza were identical with those originally described by Delafield as constituting an acute productive bronchopneumonia, and more recently studied by MacCallum[2] among the American troops in Texas. This variety of pneumonia is fairly common as a sequel of measles, and, according to MacCallum and Cole, is caused by a hemolytic streptococcus. It is marked by the presence in the lung of myriads of pin head sized, grayish white foci which are irregularly rounded or angulated and in the center of which a minute opening or depression may be discerned. In the case that I had an opportunity to study these spots were present literally in countless numbers scattered through both lungs, lying in a deep bluish red background and bearing a resemblance to miliary tubercles. On microscopic examination it was found that each whitish spot corresponded to a small bronchus whose lumen was partially or completely filled by polymorphonuclear leukocytes and clumps of desquamated epithelium. The connective tissue framework of the bronchus supported numbers of dilated and deeply injected capillary vessels between which were round cells. The alveoli in the vicinity or at a distance were filled either by polymorphonuclear leukocytes or by leukocytes and desquamated cells, some of the latter containing brownish yellow pigment granules. The interalveolar capillaries were universally injected. In short, the histologic changes were those of a very early stage of Delafield's, acute productive bronchopneumonia, the later stages of which, according to the original observations of the distinguished American pathologist,[3] are attended, among other things, by the growth of new connective tissue in the smaller and medium sized bronchi, in the interalveolar septums and thus by permanent changes of a productive nature.

THE CIRCULATORY SYSTEM

In the prevailing pandemic influenza, clinical indications of circulatory disturbances are numerous. For example, the nasopharynx is deeply congested, the skin is not uncommonly the seat of erythematous eruptions of various sorts, duskiness and cyanosis are common, the blood pressure is often alarmingly low, and the pulse is slow. At necropsy the signs of congestion are more intense and widespread than in any acute infective disease with which I am acquainted. The mucous membrane of the upper respiratory tract is swollen and deep red, the pulmonary capillaries, with scarcely a detectable exception, are crowded with red cells, and hemorrhages into the pleura and lung are common, the spleen is always deeply congested, the capillaries of the kidney from pelvis to capsule are filled to distention, the medulla of the suprarenals is frequently swollen and deep bluish red, the mucosa of the gastrointestinal tract presents isolated or diffuse areas of injection, sometimes giving rise to hemorrhage by diapedesis, the lymph nodes are swollen and hyper-

2. Cole, Rufus, and MacCallum, W. G.: Pneumonia at a Base Hospital, THE JOURNAL A. M. A., April 20, 1918, p. 1146.
3. Delafield: Lectures on the Practice of Medicine, Part 2, p. 229.

emic to an unusual degree, the capillaries of the liver are injected to their fullest capacity, and the smaller vessels of the brain are likewise involved. In addition, the right side of the heart is dilated, especially the auricle, and the heart muscle is diffusely bluish and its capillaries are universally distended. Both the naked eye and microscopic appearances of the heart muscle fibers, however, are in the majority of cases indicative of a surprisingly excellent state of preservation. Cloudy swelling, in my experience, is exceptional.

The anatomic and histologic changes in the circulatory apparatus are of importance as indicating the necessity for stimulation from the instant that the diagnosis of influenza is made. Clinically, there are excellent reasons for believing that these changes are present from the earliest moments of infection. Moreover, from the opportunity that I have had to observe these cases at necropsy and in the living patient, it appears to me to be probable that the prevailing pandemic influenza is attended by pneumonic lesions from the beginning. Thus it has been shown that patients in whom it is impossible to detect signs of consolidation by ordinary methods of diagnosis, if subjected to roentgen-ray examination, reveal defects in the lower lobes that are to be interpreted only as areas of consolidation, subsequent developments confirming this view. Moreover, the distribution of the pathologic changes in the lungs is such as to suggest that the infection is introduced by way of the respiratory tract and that, in many cases, the initial lobular consolidations are situated deep in the substance of the lung, the process later developing in such fashion as to include the periphery. In those cases in which death has occurred twenty-four or thirty-six hours after the development of detectable pneumonic signs, it is scarcely conceivable that the massive solidification of the lungs found at necropsy could have taken place with corresponding rapidity. The suggestion naturally follows that, if one is to err at all let it be on the safe side, and that every case of pandemic influenza should be regarded from the outset as pneumonic, and so treated.

THE KIDNEYS

Microscopic examination of the kidneys reveals diffuse congestion of the capillary network throughout the entire organ, together with cloudy swelling of the tubular epithelium, most marked in the convoluted tubules and not infrequently well marked in the epithelium of Bowman's capsule. In this way the lumina of the tubules become partly occluded by granular débris, and similar material is to be found in the interval between capsule and tuft.

THE BRAIN

In those cases attended by delirium, the meninges of the brain are richly infiltrated by serous fluid and the capillaries are injected. Microscopic examination of the brain substance shows marked hyperemia. In one of our cases the convolutions of the brain were flattened and the brain tissues were noticeably dry. In another case purulent meningitis of pneumococcal origin was present.

JAUNDICE

In seven of the twenty cases investigated postmortem at Bellevue and Willard Parker hospitals, slight jaundice was present. Inquiry into this feature has shown that the mucous membrane of the duodenum is congested and swollen and that the exit of bile through the papilla of Vater is impeded to an extent sufficient, in part at least, to account for its retention in the bile capillaries and liver cells. Moreover, microscopic examination reveals the liver cells in such an advanced state of cloudy swelling that the bile capillaries are obstructed, the bile accumulating in the cells as minute greenish particles, finally being diverted, no doubt, into the circulation. In addition, the bile itself is extremely viscid, the contents of the gallbladder consisting of material of gelatinous consistence.

THE SPLEEN

In seven of the twenty cases of fatal influenza the spleen was normal in size, in nine it was slightly increased, and in the remaining four the organ was distinctly enlarged, three times to the extent of 300 gm. or over. The organ is deep blue; there is, in fact, a strong resemblance between the color of the spleen and that of the consolidated lower lobes of the lungs as seen through the pleura. On section the substance of the spleen is deep blue, friable rather than grumous—in which respect the consistence differs from the spleen of sepsis as commonly observed—and the follicles are unusually numerous.

ABORTION

The observation of Ball[4] that pregnant women are apt to abort as a result of influenzal infection is confirmed by our experience at Bellevue Hospital. The subject is now being investigated and will be made the object of a subsequent report.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

LUTEIN-H. W. & D.—The fully developed corpora lutea of the hog freed from foreign material, dried and powdered. One part lutein-H. W. & D. represents approximately four parts of the fresh substance (see N. N. R., 1918, p. 237).

The following dosage form has been accepted:

Lutein Tablets-H. W. & D., 2 Grains.—Each tablet contains lutein-H. W. & D., 2 grains.

4. Ball, M. W.: Abortion as a Sequela of Influenza, THE JOURNAL A. M. A., Oct. 19, 1918, p. 1336.

France the Pioneer of Child Welfare Work.—Within the past few generations, we find that modern child welfare work, as we know it at the present time, has all started in Europe. France has had a declining birth rate for many years and to France we owe every child welfare movement we have, from its inception of school medical inspection in 1842 to the establishment of the first infant milk stations in 1890. All legislation for the protection and help of expectant mothers, including the feeding of children and of pregnant women, the day nursery, indeed, practically everything that we know of that is modern in child welfare work started in France, and not because of humanitarian impulses, but because it was absolutely necessary for France to keep alive and well every child born in that country.—Josephine Baker, M.D., *Health News*, New York.

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SATURDAY, NOVEMBER 2, 1918

WAR NEPHRITIS AND ALKALI THERAPY

Only those who cultivate an intelligent familiarity with the aims and methods of modern experimental medicine can appreciate to what degree it has become responsible not only for much needed improvements in the domain of diagnosis but also for changes in practical therapy. Illustrations abound on every side. A few years ago it was a conventional procedure to attempt to "flush out" the kidneys for all sorts of ills. Today it is fortunately realized by many clinicians—we wish that one could truthfully say by all—that in acute nephritis, for example, it is quite useless to give the patient large quantities of water to stimulate elimination, as this merely tends to irritate unnecessarily the kidneys, whose excreting powers are already crippled.

A further highly significant example of the wholesome outcome of research—animal experimentation, be it noted—may be cited in the work of MacNider[1] of the University of North Carolina on the renal functions. In the nephropathic condition induced by poisoning with uranium, he has shown not only that there is an association between the degree of kidney injury and the severity of the acid intoxication induced by this metal, but also that the intravenous use of an alkali in these animals will protect the kidney against the toxic effect of uranium and increase the efficiency of various diuretic substances. The stability of the acid-base equilibrium in any individual appears to be a factor of no small importance in relation to nephropathies. Earlier studies of MacNider[2] indicated that age may not be without significance in relation to the ease with which animals with kidney lesions develop acid intoxication. He has since demonstrated[1] that in contrast with normal subjects, naturally nephropathic animals have an unstable acid-base equilibrium. When the mechanism that controls this was subjected to the action of an agent, such as chloroform, which tends to induce an acid intoxication, the naturally nephropathic animals very rapidly developed such an intoxication, and became anuric. Normal animals, however, gave no evidence of acid intoxication, and in them the formation of urine was unaffected by the anesthetic. Furthermore, evidence has been presented to show that the naturally nephropathic animals, like those suffering from renal lesions experimentally induced, can be protected in varying degrees against toxic influences by the use of alkaline solutions. When failure to protect a damaged kidney occurs, it seems to be associated with rapid depletion of the alkali reserve of the blood and the development of acid intoxication. The degree of protection conferred by such alkalis as sodium carbonate is associated with the ability to maintain a normal acid-base equilibrium of the blood. Ordinary saline solutions have no such power.

MacNider's demonstrations have already caused alkali therapy to be given extensive trial in suitable human cases of war nephritis. By this is not meant an acute disease following a focus of infection, but rather that type of the renal disorder which shows an abrupt onset, with symptoms of dyspnea and edema. Unusual opportunity for such tests has been afforded among the troops in active service, where in contrast with the comparative rarity of acute nephritis in civil life large numbers of cases of this condition have been observed. Thus Keith and Thompson,[3] reporting from a base hospital in France to the British Medical Research Committee, assert that acidosis of moderate degree, measured by the alveolar carbon dioxid tension and the alkali reserve of the blood plasma, is generally present. One group of cases, designated as the resolving type, usually shows rapid improvement, disappearance of acidosis and reestablishment of good renal function through rest and simple dietotherapy. In the more severe nonresolving type of cases, however, alkali therapy seemed to be of distinct service in restoring both the normal acid-base relationship and improving the renal function.

Although acidosis was always accompanied by retention of substances normally excreted by the kidney, and spontaneous recovery from the acidosis followed the rapid elimination of these substances, the British investigators are of the opinion that the degree of acidosis encountered in war nephritis is secondary to impaired renal excretion. In this respect they agree with students of chronic nephropathics who have reached the conclusion that the acid intoxication developing in these conditions is a retention acidosis, and that the accumulation of nonvolatile

1. MacNider, W. deB.: The Stability of the Acid-Base Equilibrium of the Blood in Naturally Nephropathic Animals and the Effect on Renal Function of Changes in This Equilibrium: I, A Study of the Acid-Base Equilibrium of the Blood in Naturally Nephropathic Animals and of the Functional Capacity of the Kidney in Such Animals Following an Anaesthetic; II, A Study of the Efficiency of an Alkali to Protect the Naturally Nephropathic Kidney Against the Toxic Effect of an Anesthetic, Jour. Exper. Med., 1918, **28**, 501, 517.

2. MacNider, W. deB.: A Consideration of the Relative Toxicity of Uranium Nitrate for Animals of Different Ages, I, Jour. Exper. Med., 1917, **26**, 1; Concerning the Influence of the Age of an Organism in Maintaining its Acid-Base Equilibrium, Science, 1917, **46**, 643.

3. Keith, W. M., and Thompson, W. W. D.: War Nephritis—A Clinical Functional and Pathological Study, Quart. Jour. Med., 1918, **11**, 229.

acids is not responsible for the primary renal injury.[4] But when the acid substances accumulate, a further degeneration of epithelium may follow whereby the functional capacity of the kidney is arrested. It is this associated kidney injury which maintenance of acid-base equilibrium through administration of alkali seems to prevent.

DIET AND MILK SECRETION

Not long after the demonstration that beriberi is a disease attributable to a deficiency of the dietary came the announcement that the nursing infants of mothers who were suffering from the malady might also exhibit the symptoms. Judging from the ordinary chemical analyses there was no reason to assume that the milk furnished by the victims of beriberi was deficient or unusual in its content of the ordinary nutrients. Fats, proteins, carbohydrate and mineral salts seemed to be present in the usual proportions. Soon it began to appear that milk is the carrier of something more than these familiar ingredients. Milk contains vitamins of more than one type. Evidently these may fail to be transmitted to the secretion under certain conditions of malnutrition in the lactating mother. Thus we are brought face to face with the unanticipated possibility that a product, milk, highly prized as an almost ideal food, may be of excellent quality as judged by the traditional standards of purity and value, and yet may lack something quite as essential as the calory-yielding ingredients.

To what may the failure to produce perfect milk be charged? Does the synthetic capacity of the mammary gland fail in its duty, or is the production of nutritively imperfect milk associated with the diet of the lactating individual? The latter assumption seems somewhat unlikely in view of the now current doctrine that it is "breed" rather than "feed" which determines the character of the milk of any species. The mammary gland is not merely a filter which separates indiscriminately the varying pabulum brought to it by the blood stream. It seems to yield a product of almost invariable character despite profound alterations in the food intake of its bearer. This has been found to be true of cattle; and it was long ago reported that during the siege of Paris in 1870 young and vigorous women maintained and in some cases even induced gains in their suckling infants while these mothers themselves were actually or nearly starving.[5]

Nevertheless, the synthetic powers of the mammary gland have evident limitations. Underfeeding and faulty diets are not without effect on the milk secretion; but it has remained for the more recent methods of biologic analysis—as it has been termed in contrast with ordinary chemical examination—to reveal the more subtle deficiencies that are the expression of the relation between improper food supply and milk production. The substantiated facts in this connection have recently been summarized by McCollum and Simmonds[6] of the newly established School of Hygiene and Public Health at Johns Hopkins University, to whom are due fundamental researches in this field. The evidence, they state, seems conclusive that there is no special synthetic power of the mammary tissue by virtue of which amino-acids that are not found in the food can be formed. It is true that the milk contains proteins of uniquely good nutritive quality so that young animals may grow far better on a small concentration of these than on a much larger intake of plant proteins, for example. What happens, however, is this: The maternal organism selects certain of the amino-acids from the digestion products of the food and presents them in the milk incorporated in proteins in such proportions as make a very efficient transformation into the tissue proteins of the young. To quote McCollum and Simmonds, the mother "makes from her large intake of protein of rather poor quality a smaller output of protein of exceptional biologic value in the milk." This involves no synthesis of amino-acids de novo—only a selective absorption and reconstitution of the amino-acids which circulate in the blood, into complexes, the milk proteins, which in turn act as food that is very efficiently converted into body proteins for growth.

Similarly, according to McCollum, Simmonds and Pitz,[7] the mammary gland picks up from the blood the as yet chemically unidentified vitamins and passes them into the milk. They cannot be produced synthetically, for when they are absent from the mother's diet the vitamins are not found in the milk. The demonstration of the production of an otherwise normal milk poor or lacking in the fat-soluble or water-soluble vitamin or both, and therefore not capable of inducing growth, is an item of great moment for the science of nutrition. It deserves to be emphasized prominently that "milk production may take place under dietary conditions such that the product is deficient in certain complexes necessary for growth." And it is a seemingly logical inference from this that deficiencies in the supply of certain inorganic nutrients to the mother may lead to consequent imperfections in the milk she secretes. The quality of milk needs to be evaluated from new standpoints.

Today we know that many of the items in the food supply of the less well to do may be poor in vitamins. Breads and other products prepared from highly milled cereals, refined sugar, vegetable fats, butter substitutes and meats belong to the staples in the

4. Sellards, A. W.: The Essential Features of Acidosis and Their Occurrence in Chronic Renal Disease, Bull. Johns Hopkins Hosp., 1914, 25, 141. Peabody, F. W.: Clinical Studies on the Respiration, II, The Acidosis of Chronic Nephritis, Arch. Int. Med., December, 1915, p. 955.

5. Decaisne: Gaz. méd., 1871, p. 317.

6. McCollum, E. V., and Simmonds, N.: The Nursing Mother as a Factor of Safety in the Nutrition of the Young, Am. Jour. Physiol., 1918, **46**, 275.

7. McCollum, E. V.; Simmonds, N., and Pitz, W.; Journ. Biol. Chem., 1916, **27**, 33.

rations of these people. Perhaps, therefore, there is no undue exaggeration in this contention of the Johns Hopkins biochemists:

> There are tens of thousands of human mothers who are attempting to nurse infants on diets derived too largely from the seeds of plants and their milled products. Such diets produce inferior milks and may be the cause of grave disorders in the very young.

The remedy lies in the suitable extension of the dietary, in the use of green vegetables and fruits, and the inclusion of milk as far as economic conditions and financial resources allow.

INDICATIONS OF PHYSICAL OVEREXERTION

No one will dispute the general principle that exercise is essential to the well being of the human organism. Lack of use of a part or structure adapted to energetic functioning is likely to lead to poor nutrition and perhaps even to atrophy of the organ concerned. The phenomena of overexertion are not so generally recognized, although it would not be difficult for any physician to recall instances of damage thereby, particularly in relation to the circulatory apparatus. In other words, both overexertion and disuse of vital organs represent extremes of undesirable personal behavior. Perfect health demands a performance that shall steer a safe course between deficient exercise and undue effort.

The foregoing comments have an added import in connection with the problem of athletic sports. So long as these are in sole charge of untrained "trainers" there will be an element of danger in the win-at-all-costs attitude that is inculcated into the competitors in athletic games. In more recent years, protests against the possible sacrifice of health through undue exertion and break-neck strenuousness have begun to be heard. The "athletic heart" was the first symptom to awaken the exponents of unrestrained and indiscriminating effort in sports to the possibility of a real danger. Latterly the "athletic kidney" has commanded a little attention from the sober minded lovers of exercise in the form of sport; and it might not be amiss to assume the further possibility of a complex of disturbances involving the circulation as a whole and attributable to improper athletic effort. The kidney function has not as yet been taken into account as carefully as the heart activities, doubtless because it is somewhat less readily subjected to critical diagnostic analysis than are the cardiac performances.

The questions that perplex the student of the physiology of athletic exercise may for the most part be raised with equal propriety in connection with the work of the soldier. Military training has become a sort of nationalized athletic exercise in which the work to be done is not infrequently associated with tremendous exertion. Forced marches with heavy equipment, arduous toil at the guns on land and sea, and speeding-up moves at every turn of unexpected events in the uncertainties of war are experiences that mean a burden of physical effort to thousands of briefly trained young men. The problem of highest efficiency in war work as well as in peace play is bound up to some degree with the determination of the limit at which normal functioning ceases and the abnormal response manifests itself.

The military hygienist, therefore, not only is concerned with the conditions that determine the onset of fatigue, the enemy of all progress, but also asks how much the heart can endure and the kidneys tolerate without deterioration or impairment. There is, however, a category of persons who may well give him added concern. An army has its retinue of convalescents whose value for service depends on the ultimate degree of their recovery. A recent investigation by Feigl[1] at Hamburg shows that the usual clinical signs that the older methods of physical diagnosis depend on may not always be reliable indexes. He examined a considerable number of soldiers between the ages of 25 and 40 years who had regained a satisfactory state of nutrition and strength after prolonged stays in a military hospital. Most of them had experienced kidney disturbances as an involvement of the disease that invalided them, and had regained the status of being reported "practically well" when the tests were made. The task was a military march of 17 kilometers in three hours—not an unduly exacting trial for a soldier in good trim. The kidney functions were tested not only by an examination of the urine for protein and cellular structures but also by an analysis of the blood for evidences of retention of metabolites. The nonprotein nitrogen, urea, creatinin and uric acid were estimated. Incidentally it may be pointed out that the technic employed on these German soldiers was entirely that of made-in-America procedures. The results indicate that strenuous exercise which will not affect the functions of a well trained healthy person may nevertheless call forth evidences of imperfect restoration of capacity in apparently cured patients. Thus the newer and more subtle tests, such as the chemical micro-analysis of the blood affords, present information that warns—as THE JOURNAL has often warned before—of the danger of overstepping the physiologic limits of endurance in any physiologic activity.

1. Feigl, J.: Biochemische Untersuchungun über den Einfluss von Marschanstrengungen auf die Zusammensetzung des Blutes, Biochem. Ztschr., 1917, **84**, 332.

Fly Prevention in the B. E. F.—Tangle-foot wire instead of paper is used to catch flies in hospitals, convalescent camps and like places. Pieces of hay-baling wire, 2 feet long, have a hook bent on one end and by dipping or with a brush are coated with a hot mixture of 4 pints of castor oil and 9½ pounds of crushed resin. The oil is heated and the resin gradually stirred in. When these wires are hung up, the flies alight on them and stick fast. When the wires become covered they are burned off and recoated for use again.

Current Comment

IT IS A WISE PHYSICIAN WHO KNOWS HIS OWN DANGER

Last week the deaths of 81 physicians were recorded in THE JOURNAL, occupying three pages. This week the deaths of 174 physicians are recorded, occupying five pages. The total number of deaths recorded in these two issues is 255, and of these 154 are definitely known to have been due to influenza or pneumonia; undoubtedly in the majority of instances in which the cause is not given, it was influenza. These obituaries are records of sacrifice to duty. A layman may, if he desires, keep from exposing himself to any infection; but the physician must go when called without thought of consequences to himself. However, as one considers the list one wonders whether or not some of these deaths might have been prevented by adopting some of the simple precautionary methods that have been suggested, such as the wearing of the face mask. This thought arose when we received a letter from a physician who, in sending in the names of two physicians who had died, said: "Dr. A. visited at the Great Lakes Naval Training Station an old patient who had influenza. Two days after his return home, Dr. A. came down with the disease. Dr. B. was called to see Dr. A. and examined his throat, Dr. A. coughing in his face. Two days later Dr. B. had the typical manifestations of the disease." It is proverbial that physicians, like preachers, give advice which they themselves do not consistently follow. It is a wise doctor who knows his own danger.

DIGESTIVE ABSURDITIES AGAIN

In the Correspondence department of this issue is a letter from a company whose "aromatic digestive tablets" had failed to measure up to the standard of strength declared on the label. In its defense, the company offers the excuse that aromatic digestive tablets are of such a nature that they cannot "be expected to test up to labeled strength." This argument cannot be accepted unconditionally because the firm is engaged in a professional, as well as a commercial enterprise. Scientific investigation has demonstrated beyond any doubt the irrationality, one might even say absurdity of such combinations of digestive ferments as go to make up the various brands of aromatic digestive tablets, and all chemists and manufacturing pharmacists are familiar with these facts. The excuse for manufacturing them is that there is a call for them. That is to say, in spite of the demonstrable absurdity of the combinations of pepsin and pancreatin, etc., physicians continue to call for, and to waste their patients' money on, these ridiculous mixtures. Pharmaceutical concerns that wish to continue to sell aromatic digestive tablets, even though the scientific men on their staffs know that the preparations are absurd and that the ferments that are put into them will, in all probability, destroy each other before they can reach the patient, should be made to date such products. After all, though, it is a question whether the physician who ignorantly prescribes aromatic digestive tablets is not more morally culpable than the pharmaceutical house that supplies what such physicians demand.

NO SPECIFIC "CURE" FOR INFLUENZA

The present epidemic, as was to be expected, has given rise to the publication in the newspapers of all kinds of "sure cures." Their number is legion, and they vary in character from those with a semiscientific basis to others with no basis whatever. Some could be classed under the term ridiculous. Many persons recommend certain methods of treatment from purely altruistic motives, others for financial gain. Almost all of the proponents of alleged specific methods are bombastically enthusiastic. Hyperenthusiasm applied to moral or esthetic ideals is a praiseworthy emotion, but as related to medical science is usually a delusion and a snare. The research worker should view his results with a cold, dispassionate conservatism, before considering publication with resultant harm to himself and the public. Many of the alleged cures and remedies now being recommended probably will do more harm than good. The United States Public Health Service, having been besieged with inquiries regarding this and that method of treatment, has issued a special bulletin in which it is emphasized that there is no specific cure for influenza yet known and that the chief reliance must be placed on good hygiene, good nursing and symptomatic treatment.

BARLEY WILL CONSERVE WHEAT

"Barley," says M. Hindhede,[1] the Danish exponent of economy in nutrition, "is too valuable as a human food to be used in these hard times as fodder for pigs or in the production of beer." This conclusion was based on extended dietary experiments on men in which barley, margarin, sugar, milk and fruit represented the range of variety in the food intake. The cereal was used mostly in the form of coarse groats, yet it was utilized almost as well as comparable coarse whole wheat bread; and doubtless a better milled or better cooked product would have shown even superior digestibility. The availability of the very coarse cereal used was by no means equal to that of the finest wheat bread or similar refined products, but its wholesomeness seemed to be beyond question. An exclusive diet of cereals is never ideal, whatever the source of the grain used. But many persons have depended so largely on wheat in the past that they fail to recognize the equivalent merits of its substitutes. We have already spoken a good word for barley in support of the well founded contentions of the U. S. Food Administration. Barley is extremely hardy, and is grown as far north as the Arctic Ocean in Russia and as far south as the Nile and the equator in eastern Africa. Its drought-resisting qualities make it particularly valuable as a crop in somewhat arid regions. Barley

1. Hindhede, M.: Ernährungsversuche mit Gerstenwassergrütze. Skandin. Arch. f. Physiol., 1918, **35**, 294.

is believed to have been one of the first cereals used by man and is today probably the best of the substitutes for mixing with wheat in bread-making.

Medical Mobilization and the War

Government Purchase for Laboratory School at New Haven

The government has recently purchased the property of the Elm City Hospital Corporation, New Haven, and is using it for work in connection with the Yale Army Laboratory School and the medical side of the Chemical Warfare Service. All candidates for positions in the various base, field, and mobile laboratories overseas will be sent to New Haven for intensive training. About 400 men are enrolled and are under the command of Lieut.-Col. Charles F. Craig, M. C., U. S. Army. Work has been commenced on a temporary building on the New Haven Hospital grounds for the Army Laboratory School.

New Publication of Camp Wheeler Hospital

The United States Base Hospital at Camp Wheeler, Ga., has just begun the publication of a semimonthly, the *Camouflage*, devoted to the interests of the Medical Department. It is a twelve-page publication excellently printed, and with an artistic cover. The name, the *Camouflage*, seems particularly apt since the first issue contains several items taken from, and which were original in, the "Tonics and Sedatives" department of THE JOURNAL without credit. They are signed by Sarg. this and Sarg. that.

Honors Awarded

The Distinguished Service Cross has been awarded to Capt. George E. McGinnis, One Hundred and Tenth Ambulance Company, One Hundred and Third Sanitary Train, of Clarendon, Pa., who on "The night of August 9, with complete disregard of his personal safety made a reconnaissance under fire and located a line of evacuation for ambulances from Fismette, and on the morning of August 10, under shell fire personally repaired the bridge between Fismes and Fismette thereby making possible the evacuation of twenty-eight wounded men," also to Asst. Surg. Ogden D. King, U. S. Navy, Albemarle, N. C., attached to U. S. Marine Corps, "In action near the Bois de Belleau, June 9 and 10, in two successive days the regimental aid station in which Surgeon King was working was struck by heavy shells, and in each case demolished. Ten men were killed and a number of wounded badly hurt by falling timbers and stones. Under these harassing conditions this officer continued without cessation his treatment of wounded, assisting in their evacuation, and setting an inspiring example of devotion and courage to the officers serving under him."

Rehabilitation of Soldiers and Sailors

The federal board for vocational education has begun the work of placing disabled soldiers and sailors for reeducation, according to the *Vocational Summary* for October. The rehabilitation division of the board has opened offices, for the purpose of reeducating and placing disabled men, in seven different districts. District 1 comprises the New England States, except Connecticut; District 2, New York, New Jersey and Connecticut; District 3, Pennsylvania and Delaware; District 4, West Virginia, Virginia, Maryland and the District of Columbia; District 5, Florida, Georgia, North Carolina, South Carolina and Tennessee; District 6, Louisiana, Mississippi and Alabama, and District 7, Indiana, Ohio and Kentucky. Other districts will be created and offices opened as soon as the proper personnel can be obtained. In dealing with the disabled man the board expects to treat him throughout as a civilian needing advice and assistance, to approve his choice of occupation unless, after careful investigation, sound opinion shows it to be in the end not advisable to train him to meet the needs of the occupation he has elected, to urge him to make the most of his opportunity to overcome his handicap by taking thoroughgoing instructions, to help him to secure desirable permanent employment, and to keep in close touch with him after he goes to work.

Officers Needed in Sanitary Corps, U. S. Army

A communication from the office of the Surgeon-General announces that for the purpose of meeting the requirements of a considerably enlarged program of service, both in the Army camps in this country and with the American forces overseas, the Sanitary Engineering Section of the Sanitary Corps is in need of a number of officers of the following types: sanitary engineers of broad training and experience in water supply and its purification, sewerage and sewage disposal, and other engineering activities related to public health; engineers with practical experience in drainage and mosquito control operations; epidemiologists with good training in preventive medicine and qualified to institute and administer practical measures for the prevention or control of contagious disease; municipal health officers or sanitary inspectors with sound training in the fundamentals of sanitation and with a record of successful experience in handling men and in the sanitation of closely occupied areas, such as cities and industrial communities; water chemists and bacteriologists skilled in field and laboratory examination of water and with practical experience in water and sewage problems. The present and prospective work of this section will require the services of both commissioned and noncommissioned officers, and of a relatively small number of privates. Applications for information and for service should be made to the Surgeon-General, Washington, D. C.

VOLUNTEER PHYSICIANS FOR UNITED STATES PUBLIC HEALTH SERVICE

THE JOURNAL has published several announcements asking for volunteers for permanent work as acting assistant surgeons in the Public Health Service. In addition, the Public Health Service is in urgent need of physicians for temporary duty in connection with the influenza epidemic. This work is being organized by states in connection with the state boards of health. Physicians who wish to make themselves available for temporary emergency work at a salary of $200 per month and $4 per diem allowance for subsistence should communicate with the Surgeon-General, U. S. P. H. S., indicating their desire to serve, or communicate directly with the Public Health Service officer in their own state. A list of such public health officers follows:

Alabama—P. A. Surg. Robert Olesen, City Hall, Montgomery.
Arizona—Field Director O. Harry Brown, Supt. Public Health, Phoenix.
Arkansas—Asst. Epidem. J. C. Geiger, City Hall, Little Rock.
California—Surg. W. C. Billings, 76 New Montgomery St., San Francisco.
Colorado—T. D. E. E. Kennedy, Sec. State Board of Health, Denver.
Connecticut—Hdqrs. at Boston, Mass., State House, R. 167-C, Boston.
Delaware—A. A. Surg. J. W. Richards, c/o St. Bd. Health, Wilmington.
District of Columbia—Asst. Surg. E. S. Mustard, Webster School, 10th and H Sts., N.W.
Florida—Asst. Surg. O. H. Cox, State Bd. of Health, Jacksonville.
Georgia—Asst. Epidem. C. C. Applewhite, 78 Marietta St., Atlanta.
Idaho—Field Director E. T. Bower, State Health Officer, Boise.
Illinois—Senior Surg. J. C. Cobb, 4141 Clarendon Ave., Chicago.
Indiana—A. A. Surg. W. F. King, State Board of Health, Indianapolis.
Iowa—Asst. Surg. W. C. Witte, Box 912 (Telegrams U.S.P.H.S.) Des Moines.
Kansas—Collab. Epidem. S. J. Crumbine, State Health Officer, Topeka.
Kentucky—Surg. L. D. Fricks, 519 Custom House, Louisville.
Eastern Kentucky—Surg. John McMullen, P. O. B. Lexington.
Louisiana—Surg. C. M. Corput, Marine Hospital, New Orleans.
Maine—P. Asst. Surg Paul Preble, c/o State Health Officer, Augusta.
Maryland—A. A. Surg. C. Hampson Jones, State Dept. Health, 16 W. Saratoga St., Baltimore.
Massachusetts—State House, R. 167-C, Boston (Headquarters).
Michigan—Field Director R. M. Olin, Sec., State Bd. of Health, Lansing.
Minnesota—Collab. Epidem. R. M. Bracken, Sec. State Bd. H., St. Paul.
Mississippi—Collab. Epidem. W. S. Leathers, State Bd. H., Jackson.
Montana—Collab. Epidem. W. F. Cogswell, Sec. State Bd. H., Helena.
Nebraska—Field Director W. F. Wild, Com. of Health, Lincoln.
New Hampshire—State House, R. 167-C, Boston, Mass. (Hdqrs.)
New Jersey—P. A. Surg. W. L. Treadway, State Bd. Health, Trenton.
New Mexico—Surg. J. W. Kerr, Castenada Hotel, Las Vegas.
New York—Field Director Hermann M. Biggs, Com. of Health, Albany.
North Carolina—Prof. C. W. Stiles, State Board of Health, Raleigh.
North Dakota—Field Director C. J. McGurren, Sec. Bd. H., Devils Lake.
Ohio—A. A. Surg. E. W. Scott, U.S.P.H.S., State Bd. Health, Columbus.
Oregon—A. A. Surg. A. C. Seely, State Board Health, Portland.
Pennsylvania—P. A. Surg. W. F. Draper, State Dept. H., Harrisburg.
Rhode Island—(Hdqrs. Boston, Mass.) State House, R. 167-C, Boston.
South Carolina—P. A. Surg. C. V. Akin, State Bd. Health, Columbia.
South Dakota—Field Director Park S. Jenkins, Supt. Health, Wanbay.
Tennessee—P. A. Surg. R. C. Derivaux, State Bd. of Health, Nashville.
Texas—Surg. C. H. Gardner, State Board of Health, Austin.
Utah—A. A. Surg. T. B. Beatty, State Bd. Health, Salt Lake City.
Vermont—(Hdqrs. at Boston, Mass. State House, Room 167-C).
Virginia—Sc. Asst. W. L. Wood, State Board of Health, Richmond, Va.

Washington—A. A. Surg. T. D. Tuttle, c/o State Board of Health, or 930 Henry Bldg., Seattle.
West Virginia—A. A. Surg. Alston Maxwell, 16 Masonic Bldg., Charleston.
Wisconsin—Field Director C. A. Harper, State Health Officer, Madison.
Wyoming—Field Director C. Y. Beard, Sec. State Bd. H., Cheyenne.
Pennsylvania—Surg. Edward Francis, Armory, Chester, Pa.

The Twenty-Sixth Annual Meeting of the Association of Military Surgeons

The twenty-sixth annual meeting of the Association of Military Surgeons was held at Camp Greenleaf, Chickamauga Park, Ga., under command of Col. W. N. Bispham, October 14 to 16. The attendance (about 400) consisted of representative medical officers from the U. S. Army, U. S. Navy, and the Public Health Service. Among the papers presented were those of Lieut.-Col. George E. deSchweinitz, showing how eyes are saved and thereby limiting the number of cases of blindness. Conditions of the ear, nose and throat, whereby the hearing and sense of smell and taste were saved in many instances, were shown by Col. H. P. Mosher of Boston, and also by Col. W. J. S. Lyster.

The Surgeon-General's Office of the Navy was represented by Capt. George A. Lung, commanding officer, U. S. Naval Hospital, Brooklyn, who is in charge of the largest naval hospital in the world. To a large extent many of the members of the Marine Corps from the Chateau Thierry and Soissons sector are under his care. Captain Lung, as president of the organization, read a most instructive and interesting paper reviewing the history of the organization and holding forth some of the problems that would have to be presented to the medical officer at the end of the war.

Capt. F. S. Pleadwell, M. C., U. S. Navy, who was medical aide to the commandant of the Norfolk Naval District and for a year naval observer to the allied forces in Europe, presented a most interesting paper on hygiene and sanitation in which he described the improved conditions installed throughout Europe in an endeavor to make "our boys" have healthy surroundings. He described how their quarters were made habitable, and how diseases which were responsible for a large number of deaths during the Spanish-American War were entirely eliminated. Captain Pleadwell was elected third vice president.

Capt. F. T. McCullough, fleet surgeon of the Atlantic fleet, read a most instructive and intesting paper relative to the handling of our sick and wounded boys in their being transported from the other side to America.

Capt. J. A. Murphy of the Surgeon-General's Office described the importance of the work that is being carried on at Camp Greenleaf under Colonel Bispham, commanding, and its relation to the Navy and the work of the Navy while our troops are transported to Europe.

A most unusual and interesting demonstration was shown by Commander R. S. Bainbridge, M. C., U. S. Navy, in which he showed some moving pictures which have not as yet been shown in America until the present meeting, and demonstrating the advances made in restoring the cosmetic appearance of men who have extensive injuries to the nose, mouth, chin, and about the eyes. Many persons who would otherwise look hideous have had artificial face masks made out of copper netting treated with silver, and molded in such a position as to cover defects in the nose and other parts. Special details are completed by comparing the artificial face with a photograph before the injured went to war. Commander Bainbridge also gave a most interesting talk on the spirit of the Medical Corps, of the soldiers, and of the civilian population behind the battle lines. He described the not infrequent reinvigoration of elderly men, who are taking the places of many of the younger men who were killed in large numbers during the early part of the war.

One of the papers on surgical subjects was presented by Major F. H. Albee, M. C., which gave the importance of using the bone particles in the restoration of lost bone. The subject was beautifully illustrated with moving pictures.

On the afternoon of October 15 the entire command of Greenleaf was reviewed by Colonel Birmingham, president-elect of the association. On the same evening the delegates and visiting members witnessed a minstrel show which was staged for their entertainment. This entertainment was furnished by the enlisted personnel of Camp Greenleaf. A great many members remained until the close of the session, Wednesday evening, when they were entertained with an athletic exhibition, consisting of wrestling, boxing, etc., the music for which was furnished by the 120 piece Camp Greenleaf Medical Department Band.

At the business meeting several important amendments to the constitution were adopted, one of which admits to associate membership acting assistant surgeons of the Army, Navy and Public Health Service, and another provides for a sinking fund committee to consist of the president, treasurer, and three members selected from former presidents of the association. The following officers were elected: president, Col. Henry P. Birmingham, M. C., U. S. Army; vice presidents, Col. Joseph A. Hall, M. C., U. S. Army, Cincinnati (representing the National Guard); Asst. Surg.-Gen. John K. Kerr, U. S. P. H. S., and Capt. Frank L. Pleadwell, Medical Director, U. S. Navy; secretary-treasurer, Col. William J. L. Lyster, M. C., U. S. Army, and members of the sinking fund committee, Surg.-Gen. Rupert Blue, U. S. P. H. S.; Admiral William C. Braisted, Surgeon-General, U. S. Navy, and Col. Van R. Hoff, M. C., U. S. Army (retired). The selection of the next place of meeting was left to the executive council with power to act.

American Expeditionary Forces' Weekly Bulletin

The following paragraphs are taken from the *Weekly Bulletin of Disease*, dated September 23, issued for circulation among American medical officers in France:

PNEUMONIA

Septic pneumonia, due commonly to the *Streptococcus hemolyticus*, has appeared in virulent form in a dozen or more different and widely separated points in France. There has been a high mortality (from 20 to 40 per cent.), deaths occurring in many instances within twenty-four and forty-eight hours of onset of symptoms. The conflict between infection and resistance, once the symptoms are well declared, is apparently but little modified by any treatment provided.

Exhausted, driven, anxious men are easy prey to infection. The condition of the men when exposed to infection is of far greater importance than the care he gets after he is sick in bed. A man is entitled to at least the devoted care given to a horse. The man's resistance is largely at the mercy of his officers, and to them we must look for the greatest measure of prevention.

Here is what energetic and resourceful medical men are doing about the pneumonia situation in the A. E. F., through improvements in sanitation of environment and control of personal habits:

(From Headquarters, 32d Division, Office of Division Surgeon)

For the purpose of prevention and treatment, pneumonia will hereafter be regarded as a contagious disease by the medical personnel of this division.

If a case occurs during an inactive period or while in billets, the following will govern:

1. Send patient to hospital designated.
2. Report the diagnosis to this office by telephone or courier, giving name, number, company, organization, number of contacts and where they may be found.
3. The contacts will be segregated. The term "contacts" will be understood to mean all those who have been in close and more or less permanent relationship with the sick man and those who sleep in nearby and adjoining beds, those who work with him in kitchens, offices, and the like.
4. The surgeon will immediately make an inspection of quarters, reporting number of occupants, cubic feet of air, light, etc. He will arrange for a thorough cleaning and disinfection of the billet and institute efficient preventive measures, such as antiseptic treatment of the nose and throat of all contacts.
5. On arrival in hospital, the patient will be isolated, so far as practicable by screening or otherwise. Attendants will wear gauze masks over the nose and mouth and will be given the same treatment as other contacts.
6. One or more wards, as necessary, will be designated as pneumonia wards. No other cases will be admitted.
7. No visitors will be allowed, except when absolutely necessary.
8. Utensils, linen, etc., will be handled as with other contagious diseases.
9. Pneumonia, as with other respiratory diseases, is spread by careless expectoration and coughing (droplet infection). Effective regulations must be enforced for the prevention of infection by this means. Educate the men as to the dangers of careless expectoration.
10. Battalion surgeons will make frequent inspections of billets and inspections and examinations of men in order personally to know at all times the conditions under which

the men are living and their physical condition. The battalion surgeon who does not know the physical condition of the men at all times is *not* giving efficient service. The daily sick call does not give sufficient opportunity to know the true condition.

Pneumonia is a disease, the result of human contact. It is spread by overcrowding in billets, by exposure to cold and wet, by exhaustion, etc. See that the men have a reasonable air space in billets and that the billets are ventilated. Sleeping with heads placed alternately prevents men from coughing in each other's faces.

The effective strength of this division depends to a large extent on the earnest efforts of all medical officers to improve sanitary conditions. Where such efforts do not bring results, submit report to this office stating action taken, dates, and the names of responsible officers, in order that the matter may, if necessary, be brought to the attention of the commanding general.

(Headquarters, Hospital Center, Rimaucourt)

The commanding officer of each organization will report by memo to this office within two weeks after arrival in camp that each officer, nurse and employee of his organization can correctly recite the answers to the questions as given below:

Q.—What is the greatest danger to which you are exposed in France?

Ans.—Death from such diseases as meningitis, pneumonia, tonsillitis, influenza, measles and diphtheria.

Q.—How can I avoid this danger?

Ans.—1. By preventing comrades from coughing or breathing in my face.

2. By preventing comrades from spitting in and around buildings.

3. By preventing comrades from shutting up buildings so that the air may get close.

Q.—What else shall I do to avoid endangering my comrades?

Ans.—1. I will turn my head when I cough.

2. I will hold a handkerchief in my hand over my mouth when I cough.

3. I will keep my handkerchief and my hands clean at all times.

4. I will fix up a can in which men in my barracks can spit into a disinfecting liquid.

(Headquarters, Base Section No. 2, S. O. S.)

The following directions are given for the guidance of medical officers in the treatment of the disease (epidemic influenza and pneumonia) and to prevent its spread. The situation is serious and demands the utmost effort on the part of medical officers and thorough cooperation on the part of line officers.

(*a*) Early recognition of the first cases with their prompt and complete isolation.

(*b*) Every patient should be strictly confined to bed until symptoms have completely abated. Isolation should be maintained throughout convalescence.

(*c*) The bowels should be evacuated at the beginning of an attack, and liquid or light diet be given.

(*d*) In case of any spread of the disease in an organization, the organization should be quarantined; all pass privileges should be withdrawn, no troops should be sent elsewhere from an affected organization, and any new troops that are introduced into it while the disease prevails should be isolated so far as possible from the rest of the organization.

(*e*) It should be remembered that the disease is highly contagious, that it is probably most readily transmitted by the nasal, pharyngeal and bronchial discharges, especially in coughing, sneezing and spitting, but that it may also probably be transmitted by blankets, clothing, mess kits and other articles used by patients.

(*f*) Public gatherings, such as movie shows, concerts and dances, should be prohibited during an epidemic.

(*g*) The utmost efforts should be made to prevent overcrowding of the men in quarters during an epidemic. Where feasible, it is well to put men outdoors to sleep if necessary to prevent overcrowding.

(*h*) Medical officers are directed to report promptly to the chief surgeon of this base any indications of an incipient epidemic among the troops for which they are responsible.

(*i*) Reports from the French Service de Santé inform us that the disease prevails among the civil population in many localities, notably at Bordeaux, Arcachon, Tarbes, and Bayonne. Commanders of organizations in which the disease does not exist are warned against granting leave to any place where the disease is prevalent on account of the danger of such men introducing the disease into their organization on their return.

Evacuation or Transfer of Pneumonias.—Medical officers are warned against exposing pneumonia patients or patients with severe pulmonary disease with fever to the fatigue of transportation unless under urgent necessity for space for battle casualties. Complete rest in pulmonary disease is absolutely indispensable.

SPECIAL WARNING

Influenza is as contagious as measles and as dangerous. It is a dangerous disease by reason of the fatal complicating pneumonia. Isolate all cases of influenza, and if severe, hospitalize immediately. Examine daily all contacts for the earliest signs of the disease (pharyngitis, fever and conjunctivitis), and isolate promptly. Watch for the earliest symptoms of pneumonia. These are slight cyanosis, increased respiration, and a continuation of fever beyond the third or fourth day. The early signs of involvement of the lungs in bronchopneumonia may be slight and shown only by hyperresonance and scattered râles. It is imperative that all bronchopneumonia suspects should be removed from influenza wards and isolated separately. Beware of too early evacuation of influenza patients.

COMMISSIONS OFFERED AND ORDERS TO DUTY ON ACCEPTANCE

Alabama

To Army Medical School, Lieut. J. J. HALL, Oak Hill.

To Camp Joseph E. Johnston, Fla., Capt. O. J. BROOKS, Huntsville; Lieut. W. E. WARREN, Fort Payne.

To Fort Oglethorpe for instruction, Capt. R. A. SMITH, Brewton; Lieuts. E. H. WALKER, Birmingham; N. S. JOHNSON, Clanton; J. H. DODSON, Mobile.

Arkansas

To Fort Oglethorpe for instruction, Capt. O. MILLER, Fayetteville.

To Fort Riley for instruction, Lieuts. R. O. SMITH, Reyno; L. GARDNER, Russellville; E. D. BUTLER, Wilmar.

California

To Camp Cody, N. M., base hospital, for instruction, Capt. J. A. McNAUGHTON, Lieut. M. A. FRANK, Los Angeles.

To Camp Fremont, Calif., base hospital, Capt. W. O. MONTGOMERY, San Francisco; Lieut. J. W. DEWITT, Antioch. Base hospital. for instruction, Capt. E. A. KUSEL, Oroville.

To Camp Kearney, Calif., Capt. F. E. BROWN, Los Angeles; Lieut. E. E. DOTSON, Escondido. Base hospital, for instruction, Capt. J. S. GREEN, Oakland.

To Camp Lewis, Wash., Capts. M. M. ARMSTRONG, W. A. DUNTON, Los Angeles; Lieut. H. J. FORBES, Pasadena.

To Denver, Colo., Capt. J. B. FISH, San Leandro; Lieut. R. J. CARY, Livermore.

To Fort Oglethorpe for instruction, Capt. M. W. KAPP, San Jose; Lieuts. W. W. DUTCHER, L. E. WILSON, Los Angeles; E. C. BLACK, San Diego; E. F. HOLBROOK, San Jose.

To Fort Riley for instruction, Capts. R. N. SMITH, Los Angeles; R. O. SHELTON, San Diego; Lieuts. C. F. CRITTENDEN, Alameda; W. C. PRUETT, Oakland; F. R. MUGLER, San Francisco; R. L. HOGG, Saratoga; H. G. ROSENBERGER, Whittier.

To report to the commanding general, Hawaiian Department, Lieut. J. H. HURST, Santa Barbara; Western Department, Capts. A. A. MILLIKEN, Fort Jones; C. H. WALTER, San Jose.

To Sacramento, Calif., Mather Field, Capt. P. de OBARRIO, San Francisco.

To San Francisco, Calif., Letterman General Hospital, Lieut. L. DOZIER, Stockton.

Colorado

To Camp Lewis, Wash., base hospital, Capt. D. G. MONAGHAN, Denver.

To Fort Oglethorpe for instruction, Lieut. L. M. MAITLAND, Drake.

To Fort Riley for instruction, Capts. S. H. BELL, Montrose; W. LUCAS, Pueblo; Lieuts. R. L. DOWNING, Bayfield; G. F. LEE, Denver; C. H. TIDD, Telluride.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. J. A. MOREHOUSE, Idaho Springs.

Connecticut

To Camp Lewis, Wash., Lieut. W. E. COYLE, Waterbury.

To Camp Wheeler, Ga., base hospital, Lieut. C. K. STILLMAN, Mystic.

To Fort Oglethorpe for instruction, Capt. T. F. BEVANS, Waterbury; Lieuts. E. J. S. SCOFIELD, Danbury; F. E. FOLEY, H. J. GIAMARINO, H. W. GRODZINSKY, New Haven.

To Hoboken, N. J., Lieut. D. D. REIDY, Winsted.

To Plattsburg, N. Y., Lieut. E. T. GIBSON, Middletown.

Florida

To Camp Beauregard, La., Lieut. W. F. McGRIFF, Niceville.

To Camp Joseph E. Johnston, Fla., Lieuts. H. BYRD, Princeton; J. HALTON, Sarasota.

Georgia

To Fort Oglethorpe for instruction, Capt. J. P. PROCTOR, Athens; Lieuts. P. M. HOWARD, College Park; A. J. WHELCHEL, Cordele; D. J. BARTON, Hartwell; J. GERDINE, Jersey; C. S. FLOYD, Loganville; B. BASHINSKI, Macon; E. P. WHITE, Tignall.

Hawaii

To report to the commanding officer, Hawaiian Department, Capt. H. H. BLODGETT, Honolulu; Lieut. R. C. LICHTENFELS, Hana.

Illinois

To Camp Custer, Mich., Lieut. F. PHILLIPS, Arthur. Base hospital, for instruction, Lieut. H. R. KENNY, Chicago.

To Camp Grant, Ill., base hospital, Capt. L. B. PHELPS, Oak Park. *To examine the command* for nervous and mental diseases, Lieut. L. G. WRIGHT, Chicago.

To Camp Greene, S. C., base hospital, for instruction, Lieut. R. A. BUCKNER, Gilman.
To Camp Leach, D. C., Lieut. A. M. FROMM, Ramsey.
To Camp McClellan, Ala., Capt. W. H. GAMBILL, Centralia.
To Camp Pike, Ark., Lieut. I. F. FREEMMEL, Jacksonville.
To Camp Sevier, S. C., base hospital, for instruction, Lieut. E. ANDREWS, Chicago.
To Fort Oglethorpe for instruction, Capts. G. OSBORNE, M. M. PORTIS, Chicago; E. W. POTTHOFF, Oak Park; D. P. WIENS, Peoria; Lieuts. J. R BUCHBINDER, E. C. SKEMBARE, E. W. WHITE, Chicago; J. J. CONDON, Danville; W. R. GARDINER, Herrin.
To Fort Riley, Lieut. T. J. LAMPING, Chicago. For instruction, Capts. G. F. BRACKEN, C. L. CONROY, F. A. DAVIS, R. J. DUNN, H. K. GIBSON, J. H. REEVES, Chicago; C. E. HILL, East St. Louis; F. G. HALL, Galesburg; W. A. BALCKE, Pekin; Lieuts. C. A. JOHNSON, Barry; L. SMITH, Chapin; C. M. BERNTSEN, N. C. BULKLEY, D. D. BURNS, H. T. CUMMINGS, C. A. DONOVAN, B. E. ELLIOTT, A. O. ELLISON, E. L. EUSTICE, A. H. FERGUSON, G. F. GATES, F. F. HOFFMANN, W. G. JEFFERIES, S. B. KOSITCHEK, J. H. KRAMER, S. OCHS, M. PENCHINA, Chicago; F. T. FITCH, Dunlap; G. O. HULICK, East St. Louis; W. T. COLLINS, J. J. GRANT, Freeport; D. S. BOLES, Herrin; H. T. KING, Joliet; T. S. EBAN, Mapleton; S. E. PARR, Ottawa; A. W. SLAUGHTER, Paris; W. M. AVERY, Pawpaw; W. E. FOSTER, Richmond; H. R. ROGERS, Rockford; R. E. VALENTINE, Tallula; R. G. EMPSON, Valmeyer.
To New Haven, Conn., Lieuts. M. D. REINHART, Chicago; W. J. WALLINGSFORD, Maywood. Yale Army Laboratory School, for instruction, Lieut. W. J. SCHOLES, Chicago.
To San Francisco, Calif., Letterman General Hospital, Capt. C. F. LARSON, Chicago.

Indiana

To Camp Shelby, Miss., base hospital, for instruction, Capt. H. G. FLEMING, Anderson.
To Fort Oglethorpe for instruction, Capt. W. B. PAGE, Goshen; Lieuts. F. G. GREEN, Bloomingdale; J. S. LEFFEL, Connersville; J. A. GARRETTSON, Indianapolis; E. J. EMMERT, Lawrenceburg; C. A. PAVY, Terre Haute.
To Fort Riley for instruction, Capts. C. W. YARRINGTON, Gary; G. A. PETERSDORF, Indianapolis; M. L. ARTHUR, Patoka; Lieuts. G. W. PIRTLE, Carlisle; B. G. DUPRE, Fort Wayne; A. M. KAN, Gary; E. F. STEINKAMP, Huntingburg; C. S. WISEMAN, Lakeville; H. G. LIND, Nineveh; J. H. GREEN, North Vernon; T. J. COLLINGS, Rockville; C. E. SAVERY, South Bend; W. A. BAGBY, Utica.
To New Haven, Conn., Capt. W. A. McBRIDE, Indianapolis.

Iowa

To Ann Arbor, Mich., State Psychopathic Hospital, Capt. E. E. HARRIS, Grinnell; for intensive training, Lieut. E. P. BENEDICT, Battle Creek.
To Camp Custer, Mich., Lieut. F. M. KEEFE, Clinton.
To Camp Dodge, Iowa, Capt. H. A. LINDSAY, Independence; Lieut. W. M. SHIRLEY, Carroll.
To Fort Oglethorpe for instruction, Lieut. L. F. TALLEY, Diagonal.
To Fort Riley for instruction, Capts. F. R. KING, Farmersburg; E. HENELY, Nora Springs; F. P. LEEHEY, Oelwein; E. R. SHANNON, Waterloo; J. M. SMITTLE, Waucoma; Lieuts. E. L. LAMPE, Bellevue; H. P. BENJAMIN, Council Bluffs; J. DUNN, Davenport; W. F. BRINKMAN, Des Moines; I. J. PASCOE, Harvey; G. MARIS, Hull; E. E. KIMMEL, Iowa City.

Kansas

To Camp Sherman, Ohio, base hospital, and for instruction, Capt. W. F. BOWEN, Topeka.
To Fort Oglethorpe for instruction, Capt. L. F. BARNEY, Kansas City.
To Fort Riley, Lieut. E. R. GHENEY, Gypsum. For instruction, Capt. R. J. HARLIN, Erie; Lieuts. R. B. McKINNEY, Augusta; W. R. SCOTT, Baxter Springs; W. ROBERTSON, Caldwell; F. W. WHITE, Emporia; T. J. BROWN, Hoisington; H. B. TALBOT, Hoyt; F. D. LOSE, Madison; W. S. HUNTER, Norton; R. E. TEALL, Palso; D. W. MELTON, Preston; W. E. MOWERY, Salina; M. MEHRLE, Walnut; W. R. FISHER, Wichita.

Kentucky

To Camp Zachary Taylor, Ky., Lieut. A. J. DAVIDSON, Louisville. Base hospital, Major D. C. MORTON, Louisville; Capts. J. H. THORPE, Owensboro; G. F. DOYLE, Winchester; Lieut. W. L. SHANON, Newport.
To Fort Oglethorpe for instruction, Capts. J. R. MEEK, Covington; S. J. ROLLOW, Edgoten; J. C. LEWIS, Lexington; R. E. GRIFFIN, Owensboro; Lieuts. L. E. NICHOLS, Dawson Springs; W. A. ASHBECK, Gage; E. L. GATES, Herndon; E. E. EDWARDS, Irvine; W. E. DALE, Louisville; J. C. TUCKER, McDaniels.

Louisiana

To Camp Joseph E. Johnston, Fla., Lieut. W. K. EVANS, Lake Providence.
To Fort Oglethorpe for instruction, Lieuts. A. J. BABIN, G. J. HAUER, C. P. HOLDERITH, A. D. MOULEDOUS, New Orleans; S. B. WOLFF, Opelousas.

Maine

To Colonia, N. J., Capt. L. E. WILLARD, Saco.
To Fort Oglethorpe for instruction, Capt. D. A. McNALLY, Biddeford; Lieut. J. O. PIPER, Selon.

Maryland

To Fort Oglethorpe for instruction, Lieuts. R. C. HUME, Adamstown; H. B. AHTEY, C. E. CLARK, W. S. NIBLETT, M. E. SHAMER, Baltimore; W. L. BURNS, Cumberland; W. T. HAMMOND, Easton.
To Newport News, Va., Lieut. H. S. KUHLMAN, Jefferson.

Massachusetts

To Camp Devens, Mass., Lieuts. H. F. CURTIS, East Longmeadow; G. H. HICKS, Fall River. Base hospital, for instruction, Capt. A. P. GEORGE, Haverhill; Lieut. G. E. REYNOLDS, Pittsfield.
To Camp Gordon, Ga., base hospital, Lieut. A. A. CUSHING, Brookline.
To Camp Greene, N. C., to examinie the command for nervous and mental diseases, Lieut. F. P. MOORE, East Norfolk.
To Camp Sevier, S. C., base hospital, Capt. B. H. CASWELL, Winter Hill.
To Camp Wheeler, Ga., base hospital, Capt. C. A. TETRAULT, Southbridge.
To Fort Oglethorpe for instruction, Capt. A. H. PROUTY, North Brookfield; Lieuts. W. R. STEVENS, Abington; J. F. LAWLOR, Beverly; E. J. FITZGIBBON, Boston; H. B. PITCHER, Fitchburg; D. W. HEFFERMAN, Holliston; J. A. LEVEK, Lawrence; C. A. ROWE, Milton; J. M. SALLES, New Bedford; R. E. FOSS, E. M. VARNEY, Peabody; P. J. FINNEGAN, Salem; R. L. EMERY, Winchester.
To Hoboken, N. J., Lieuts. J. F. FALLON, Brookline; L. W. PEASE,, Weymouth.
To report to the comanding general, Eastern Department, Lieut. F. A. MURPHY, Taunton.

Michigan

To Camp Custer, Mich., base hospital, for instruction, Capt. A. E. LEITCH, Saginaw.
To Fort Oglethorpe for instruction, Capt. W. J. ANDERSON, Iron Mountain; Lieuts. D. M. CLARKE, J. R. RUPP, Detroit; W. A. GRANT, Lyons.
To Fort Riley for instruction, Lieuts. A. T. PAULL, Flint; M. M. SEARS, Kalamazoo; I. V. YALE, Sault Ste. Marie.
To Mineola, N. Y., Hazelhurst Field, for instruction, Lieut. R. D. BROWN, Detroit.
To New Haven, Conn., Lieut. E. N. NESBITT, Detroit.

Minnesota

To Camp Custer, Mich., Lieuts. J. C. KOCH, Blackduck; F. G. KOHLER, Stewart. Base hospital, for instruction, Capt. F. H. ALDRICH, Belview.
To Camp Dodge, Iowa, to examine the command for nervous and mental diseases, Capt. C. C. BLAKELY, St. Peter.
To Camp Grant, Ill., base hospital, for instruction, Capt. N. H. SCHELDRUP, Minneapolis.
To Camp Jackson, S. C., base hospital, Capt. G. B. EUSTERMAN, Rochester.
To Camp Meade, Md., Lieut. P. J. EISENBERG, St. Paul.
To Camp Pike, Ark., base hospital, for instruction, Capt. W. N. KENDRICK, Spring Valley.
To Camp Wheeler, Ga., base hospital, Major G. D. HEAD, Minneapolis.
To Fort Riley for instruction, Lieuts. R. E. BECHTEL, Eveleth; G. A. D. EISENGRAEBER, Granite Falls; I. J. MURPHY, M. SHERPER, St. Paul.
To New York, Neurological Institute, for instruction, Lieut. J. A. EVERT, Brainerd.

Mississippi

To Camp Beauregard, La., base hospital, Capt. C. S. MIDDLETON, Clinton.
To Camp Joseph E. Johnston, Fla., Lieut. F. E. BARR, Starkville.
To Fort Oglethorpe for instruction, Capt. J. T. HOSEY, Enterprise; Lieuts. H. E. GRIFFIN, Coffeeville; H. H. MECKLIN, Holly Bluff; W. C. POOL, Issaquena; B. R. CLARK, Lorman.

Missouri

To Camp Dodge, Iowa, base hospital, Capt. A. LEVY, St. Louis.
To Camp Lee, Va., Lieut. H. T. ROBINSON, Cumberland.
To Camp Pike, Ark., Lieut. H. J. BLOUNT, Potosi. Base hospital, Lieut. C. W. TOOKER, St. Louis.
To Camp Shelby, Miss., Capt. O. S. WILFLEY, Webb City.
To Fort Oglethorpe for instruction, Capts. A. B. LIBBY, Gardiner; T. T. O'DELL, Marionville; E. S. PORTER, Milan; B. E. MANKOPF, New Haven; G. D. WRIGHT, St. Joseph; Lieut. L. NOE, Novelty.
To Fort Riley for instruction, Capt. E. D. STANDLY, Brookfield; Lieuts. A. L. CAMBRE, Atlanta; R. C. ROBERTSON, Aurora; W. L. WOOD, Bolckow; H. B. NORTON, Center; F. S. WEBER, Farmington; A. D. FERGUSON, Hunnewell; L. R. WEIR, Lathrop; C. L. DODSON, Moberly; O. H. LOWDER, Moselle; T. FREEMAN, Piedmont; L. S. SHUMATE, Reeds Spring; R. E. WILEY, Sikeston; R. GZELL, F. W. KIRSCH, W. F. MARTEN, C. P. MARTIN, P. G. MOSKOP, R. A. PHELAN, S. VEZEAU, St. Louis; G. C. BACK, Zalma.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. J. F. BROOKE, Kansas City.
To New York, Neurological Institute, for instruction, Capt. R. D. IRLAND, Kansas City.

Montana

To Fort Oglethorpe for instruction, Lieut. L. W. SMITH, Butte.
To Fort Riley for instruction, Lieuts. F. J. WILLIAMS, Butte; B. E. LORD, Great Falls; C. W. WILDER, Lewiston; J. C. DOCTOR, Philipsburg.

Nebraska

To Camp Dodge, Iowa, base hospital, for instruction, Capt. A. R. DesJARDIEN, Lincoln.
To Fort Riley for instruction, Capt. E. E. BOYD, Central City; Lieuts. P. R. SCHLUMBERGER, Oakdale; G. E'OL, Ravenna; W. E. LAMB, Sprague.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. A. L. BARR, Omaha.

New Hampshire

To Fort Oglethorpe for instruction, Lieuts. W. C. ROWE, Concord; C. M. WIGGIN, Conway.

New Jersey

To Camp Abraham Eustis, Va., Capt. W. BUERMANN, Newark.
To Camp Crane, Pa., Lieuts. F. S. PARK, Atlantic City; F. C. WITTE, Riverton.
To Camp Lee, Va., Lieut. A. C. BENEDICT, South Orange.
To Camp Wadsworth, S. C., base hospital, for instruction, Capt. H. F. COOK, Newark.
To Camp Zachary Taylor, Ky., base hospital, Capt. E. B. SUTPHEN, Morristown.

To Fort Oglethorpe for instruction, Lieuts. E. E. LUPIN, E. THUM, Bayonne; W. P. THORNE, Butler; H. H. STRAUB, East Orange; J. A. DERIVAUX, P. H. FEDERMAN, C. L. O'NEILL, Newark; C. G. BUCKMASTER, West New York.

To Hoboken, N. J., Lieut. C. A. PLUME, Succassunna.

To New Haven, Conn., Lieuts. A. A. MUTTER, Arlington; A. E. JAFFIN, Jersey City.

To Newport News, Va., Capt. F. R. SANDT, Paterson; Lieut. L. S. SICA, Trenton.

New Mexico

To Camp Cody, N. M., base hospital, Capt. F. C. BAKES, Albuquerque. For instruction, Lieut. C. F. MONTGOMERY, Roswell.

To Fort Oglethorpe for instruction, Capt. H. J. MUELLER, East Las Vegas.

To report to the commanding general, Southern Department, Lieut. W. R. WASHBURN, Ingleville.

New York

To Camp Custer, Mich., base hospital, for instruction, Capts. E. M. ARMSTRONG, S. ERDMAN, New York.

To Camp Devens, Mass., base hospital, Capt. W. YOUNG, Gouverneur. Base hospital, for instruction, Capt. H. W. VICKERS, Little Falls.

To Camp Dix, N. J., base hospital, Lieut. J. C. O'GORMAN, Buffalo.

To Camp Gordon, Ga., base hospital, Lieut. P. J. DONAHOE, New Hartford.

To Camp Jackson, S. C., Capt. A. E. BARTON, New York. Base hospital, Capt. E. A. STAPLETON, Albany.

To Camp Joseph E. Johnston, Fla., Lieut. D. HERTZBERG, New York.

To Camp Lee, Va., base hospital, for instruction, Capt. R. G. LOOP, Elmira.

To Camp Meade, Md., Lieut. R. O. GREGORY, Elmira. Base hospital, Capt. D. S. BELLINGER, Buffalo.

To Camp Sevier, S. C., base hospital, Lieut. R. A. COOKE, New York.

To Camp Shelby, Miss., base hospital, Capt. R. S. TAYLOR, Buffalo.

To Camp Wadsworth, S. C., base hospital, Lieut. J. J. SHAY, Brooklyn.

To Fort Oglethorpe for instruction, Capts. G. S. KING, Bay Shore; J. S. LEWIS, U. B. STEIN, H. R. TRICK, F. ZINGSHEIM, Buffalo; P. A. BARNEY, Hornell; W. W. BOSTWICK, F. KNOWLES, New York; F. R. PICKETT, Olcott; T. H. CANNING, Port Henry; Lieuts. A. D. HAVERSTOCK, Brooklyn; L. F. ANDERSON, J. S. GIANFRANCESCHI, J. I. KEARNEY, W. S. LYNCH, G. P. MICHEL, F. SEILHEIMER, F. TERRASSE, E. L. VILLIAUME, Buffalo; F. W. GOODRICH, Catskill; E. C. WATERBURY, Croton Lake; R. S. McBIRNEY, Glen Cave; R. C. MOONEY, Gloversville; J. H. ACHESON, Hancock; N. MILLS, Mount Vernon; B. LEVINSON, Newburgh; E. J. DOLAN, H. C. DORSEY, M. V. IOVINE, A. B. LEVY, J. M. O'CONNOR, J. SCHECHTER, T. V. STACK, New York; C. A. WISCH, Niagara Falls; R. P. REAGAN, North Tonawanda; L. A. NEWMAN, Port Washington; C. J. GIANFRANCESCHI, Rochester; K. S. CLARK, Schenectady; F. H. STANBRO, Springville; D. H. BLUESTONE, C. W. DEMONG, Syracuse; C. S. BERGMAN, West Hanerstraw.

To Hoboken, N. J., Lieuts. N. B. WHITCOMB, Vovinia Center; M. ROSENBERG, Brooklyn; F. E. MONTGOMERY, New York; F. F. RONEY, North Rose.

To New Haven, Conn., Capts. E. G. WHIPPLE, Rochester; P. McPARTLON, Schenectady. Yale Army Laboratory School, for instruction, Capt. C. R. ORR, Lieuts. L. J. STRONG, Buffalo; V. R. EHLE, Gloversville.

To New York, Cornell Medical College, Capt. E. C. KOENIG, Buffalo. Neurological Institute, for instruction, Capt. K. A. ENLIND, New York; for intensive training, Lieut. H. M. BOWLBY, New York.

To Plattsburgh, N. Y., Capts. J. V. HABERMAN, New York; C. J. PATTERSON, Troy; Lieuts. C. G. TAYLOR, New York; W. J. DOUGHERTY, Yonkers.

To Washington, D. C., St. Elizabeth's Hospital, Capt. A. W. KLEIN, New York.

North Carolina

To Fort Oglethorpe for instruction, Capt. C. S. MAXWELL, Beaufort; Lieuts. A. L. HYATT, Kinston; I. E. SHAFER, Salisbury.

To New Haven, Conn., Lieut. J. W. WILCOX, Laurel Hill.

North Dakota

To Fort Riley for instruction, Lieut. A. R. SORENSON, Rugby.

Ohio

To Ann Arbor, Mich., State Psychopathic Hospital, Lieut. L. A. LURIE, Cincinnati.

To Camp Abraham Eustis, Va., Capt. C. J. BEEKLEY, Cincinnati.

To Camp Dodge, Iowa, base hospital, Lieut. J. V. GREENEBAUM, Cincinnati.

To Camp Grant, Ill., base hospital, Capt. D. G. SANOR, Columbus.

To Camp Jackson, S. C., base hospital, for instruction, Lieut. R. B. CHAMBERLIN, Twinsburg.

To Camp Leach, D. C., Lieuts. F. BEEKEL, Cleveland; H. L. WILKINSON, Hamilton.

To Camp MacArthur, Texas, base hospital, Lieut. W. H. HODGES, Columbus.

To Fort Oglethorpe for instruction, Capts. A. B. LIPPERT, S. C. NIEMAN, Cincinnati; O. T. THOMAS, Cleveland; E. HERBST, Columbus; J. W. HARBARGER, Jackson; H. H. POSTLE, Newark; J. B. McCORD, Oberlin; A. W. WHEELER, Toledo; K. F. LITTLE, Westwood; Lieuts. A. F. McQUEEN, Amherst; H. E. MYERS, Columbus; C. R. BLOSSER, Dunkirk; E. W. BREYFOGLE, Frankfort; H. J. AUSTIN, Geneva; R. C. ALLEN, Glendale; C. J. HAARLAMMERT, Loveland; J. A. McCOWAN, Marietta; E. W. WOODRUFF, Martins Ferry; C. W. HOOPES, Marysville; W. S. RHODES, Nelsonville; D. F. RUSSELL, Paulding; C. T. ATKINSON, Portsmouth; S. R. HUTCHINGS, Springfield; A. H. SYLER, Sugar Creek; O. J. LETHERMAN, Thronville; G. W. DUNLAP, H. G. PAMMENT, Toledo; J. B. FRANCIS, Troy; R. C. HUNTER, Wapakoneta; F. C. METZGER, Waverly; C. J. CHAMBERLIN, West Chester; G. C. AURAND, Weston; L. F. LONG, Zanesville.

To New York, Cornell Medical College, for instruction, Lieut. J. T. MURPHY, Toledo.

Oklahoma

To Fort Oglethorpe for instruction, Capt. W. T. ROWLEY, Miami.

To Fort Riley for instruction, Lieuts. P. B. MYERS, Apache; R. F. BROWN, Headrick; J. T. WHARTON, Picher.

Oregon

To Camp Lewis, Wash., Capt. A. E. TAMIESIE, Pendleton; Lieuts. A. L. RICHARDSON, La Grande; J. A. APPLEWHITE, L. O. ROBERTS, Portland.

To Fort Oglethorpe for instruction, Lieut. G. MOUNT, Oregon City.

To Fort Riley for instruction, Capt. R. S. FISHER, Portland; Lieuts. C. E. WHEELER, Klamath Falls; J. I. McKELWAY, Pendleton; J. F. DITTO, Rainier.

Pennsylvania

To Camp A. A. Humphreys, Va., Lieut. J. BARDY, Philadelphia.

To Camp Crane, Pa., Lieuts. C. O. RICKENBRODE, Farrell; L. L. PORCH, Fairfield; C. C. PARKS, Leechburg; S. R. POSEY, Lititz; D. H. PARKE, New Kensington; M. S. SELL, Pittsburgh; D. B. COOLEY, Pottstown; H. M. LEINBACH, E. Y. SEYLER, Reading; G. H. KIRKPATRICK, Wilkinsburg.

To Camp Custer, Mich., Lieut. A. B. PAINTER, Mill Hill.

To Camp Gordon, Ga., base hospital, Lieut. A. J. DEVLIN, Philadelphia.

To Camp Greene, N. C., base hospital, Capt. J. T. ULLOM, Philadelphia.

To Camp Jackson, S. C., Lieut. C. I. TRULLINGER, Harrisburg. Base hospital, Capt. F. T. BILLINGS, Pittsburgh. Base hospital, for instruction, Lieut. E. V. THOMPSON, Franklin.

To Camp Joseph E. Johnston, Fla., Lieut. D. M. SIDLICK, Philadelphia.

To Camp Lee, Va., Lieut. W. J. L. McCULLOUGH, Washington.

To Camp Sheridan, Ala., base hospital, for instruction, Capt. J. W. DIXON, Wilkinsburg.

To Camp Sherman, Ohio, Lieut. S. L. KOCH, Pittsburgh.

To Camp Zachary Taylor, Ky., base hospital, Lieut. J. E. GROSS, Pittsburgh.

To Fort Oglethorpe for instruction, Capts. J. D. MATZ, Allentown; M. C. O'BRIEN, Philadelphia; F. B. NORTON, Pittsburgh; C. L. LEYDIC, Tarentum; Lieuts. H. P. MEYERS, Confluence; M. T. GILLETTE, Corry; W. F. WEITZEL, Indiana; E. K. CONRAD, Johnstown; S. A. BRUNNER, Krumsville; M. H. YODER, Lititz; C. B. KIRK, Mill Hall; S. P. SIMPSON, New Brighton; B. A. McDERMOTT, A. G. SAMPSON, C. W. WANG, Philadelphia; E. R. BLOUGH, R. C. M. STEWART, Pittsburgh; J. F. BUZZARS, Portage; L. F. MAUGER, Pottstown; R. M. LYTLE, Saltsburg; T. DUFF, Slippery Rock.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. F. W. ST. CLAIR, Indiana.

To Newport News, Va., Lieut. F. G. SCHAEFFER, Allentown.

Porto Rico

To Camp Las Casas, P. R., Lieut. H. C. LEONHARDT, Bayamon.

Rhode Island

To Camp Gordon, Ga., base hospital, Lieut. J. G. WALSH, Providence.

To Camp Jackson, S. C., base hospital, Major F. T. FULTON, Providence.

To Fort Oglethorpe for instruction, Capt. H. B. POTTER, Wakefield; Lieuts. J. B. O'NEILL, Pawtucket; E. T. LEARNED, Providence.

South Carolina

To Camp Greene, N. C., base hospital, for instruction, Lieut. W. E. FULMER, Columbia.

To Fort Oglethorpe for instruction, Capt. W. S. ZIMMERMAN, Spartanburg; Lieut. J. M. HOBSON, Townville.

To report to the Governor of South Carolina, Capt. K. M. LYNCH, Charleston.

South Dakota

To Austin, Texas, Lieut. L. F. BEALL, Irene.

To Camp Custer, Mich., Capt. W. J. BENNER, Willow Lake.

To Fort Oglethorpe for instruction, Lieut. R. J. MORRISEY, Fort Pierre.

To Fort Riley, Lieut. F. N. CLIFE, Milbank. For instruction, Capt. H. A. MURNAN, Gregory.

Tennessee

To Camp Pike, Ark., base hospital, for instruction, Lieut. W. A. HORAN, Nashville.

To Fort Oglethorpe for instruction, Capt. W. G. RUBLE, Morristown; Lieuts. G. B. BROWN, Atoka; J. L. L. BIBB, Chattanooga; E. B. PASCHALL, Cottage Grove; G. G. KEENER, Kingsport; W. A. GRIMMETT, Mason; H. G. HILL, J. C. MOBLEY, Memphis; A. T. CLOPTON, Milan; C. F. THOMASON, Nashville.

Texas

To Camp John Wise, Texas, Capt. W. O. STEPHENSON, Dallas.

To Camp Logan, Texas, base hospital, Lieut. F. J. HALL, Dallas. Base hospital, for instruction, Lieut. H. R. LEVY, Dallas.

To Camp Travis, Texas, Capt. J. S. TURNER, Dallas. Base hospital, for instruction, Capt. C. L. POWER, Temple.

To Fort Oglethorpe for instruction, Capts. J. W. BOURLAND, Dallas; J. C. DYSART, El Paso; Lieut. J. E. ROGERS, Rocksprings.

To Fort Riley for instruction, Lieuts. W. S. WILKISON, Christoval; W. E. HAMPTON, Ferris; F. W. RUSHING, Fort Worth; S. KENNEDY, Grapeland; W. W. WIMER, Honey Grove; J. E. ADKISSON, Merkel; T. M. MORRIS, Mount Calm; W. E. LONG, Pearland; B. B. LILES, Staples.

To Fort Sam Houston, Texas, Lieut. T. F. HARRIS, New Willard.

Utah

To Camp Dodge, Iowa, base hospital, for instruction, Lieut. S. G. ROTHWELL, Murray.

To Fort Oglethorpe, base hospital, for instruction, Capt. F. L. PETERSON, Salt Lake City.

To Fort Riley, base hospital, for instruction, Capt. F. L. PETERSON, Salt Lake City. For instruction, Capt. S. D. CALONGE, Salt Lake City.

Vermont

To Camp Crane, Pa., Lieut. L. E. McKINLAY, Newbury.
To Camp Hancock, Ga., base hospital, Lieut. C. A. LOFTIS, St. Albans.
To Fort Oglethorpe for instruction, Lieut. H. B. HINMAN, Enosburg Falls.

Virginia

To Camp Meade, Md., Lieut. C. WEISIGER, Cumberland.
To Camp Wadsworth, S. C., Lieut. J. C. BARDIN, University.
To Fort Oglethorpe for instruction, Capt. A. P. DERBY, Monrovia; Lieuts. B. A. RICE, Forest Depot; J. M. LEWIS, Manassas; J. W. ROBERTSON, Onancock; W. P. HOY, Petersburg.
To New York, Neurological Institute, for instruction, Lieut. J. S. WEITZEL, Richmond.

Washington

To Camp Lewis, Wash., Lieuts. J. R. PETERSON, Seattle; E. J. LAWRENCE, Spokane; G. W. WIMBERLY, Toppenish.
To Fort Riley for instruction, Lieut. L. F. LUNDY, Seattle.

West Virginia

To Fort Oglethorpe for instruction, Capts. W. E. GRIM, Cameron; O. S. GRIBBLE, Clarksburg; Lieuts. F. O. MARPLE, Huntington; J. A. BAKER, Shirley; A. R. GIRARD, West Columbia.
To Newport News, Va., Lieut. G. L. STRAUB, Welch.

Wisconsin

To Camp Custer, Mich., Lieut. W. L. HERNER, Milwaukee.
To Camp Dodge, Iowa, base hospital, for instruction, Lieut. R. M. CARTER, Green Bay.
To Fort Oglethorpe for instruction, Lieut. D. B. DISHMAKER, Kewaunee.
To Fort Riley for instruction, Lieuts. A. D. ANDRUS, Ashland; A. M. ROSENHEIMER, Fox Lake; L. J. SIMON, Haricon; G. W. REIS, Junction City; C. L. McCOLLUM, Manitowoc; S. BERGLAND, Marinette; J. J. EISENBERG, L. J. FOLEY, G. T. SAVAGE, Milwaukee; E. C. CARY, Reedsville.
To New Haven, Conn., Capt. R. L. WILLIAMS, Statesan.

Wyoming

To Fort Riley for instruction, Capt. W. M. LACEY, Cheyenne.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Camp Crane, Pa., from Camp Hancock, Capt. G. J. WINTHROP, Mobile; from Camp Jackson, Capt. N. P. COCKE, Birmingham. Base hospital, from Camp Lee, Lieut. D. J. LONG, Prichard.
To Camp Devens, Mass., base hospital, for instruction, from Rockefeller Institute, Lieut. M. J. HEATH, Pratt City.
To Camp Grant, Ill., base hospital, from Fort Oglethorpe, Lieut. A. L. GASTON, Ensley. *To examine the command* for nervous and mental diseases, from Ann Arbor, Lieut. M. L. MOORER, Mount Vernon.
To Camp Lee, Va., as orthopedic surgeon, from Fort Oglethorpe, Capt. E. L. SCOTT, Birmingham.
To Camp Meade, Md., base hospital, from Fort Oglethorpe, Lieut. H. A. LEYDEN, Anniston.
To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Major H. S. WILKINSON, Montgomery.
To Camp Shelby, Miss., from Camp McClellan, Lieut.-Col. J. T. AYDELOTTE.
To Camp Sheridan, Ala., base hospital, from Camp Jackson, Major J. M. DEDMAN, Birmingham.
To Camp Sherman, Ohio, as division surgeon, from Camp Sheridan, Lieut.-Col. W. T. CADE, Jr.
To Fort Oglethorpe, evacuation hospital, from Camp Gordon, Lieut. E. C. HAGLER, Northport; from Camp McClellan, Major J. N. BAKER, Montgomery; from Camp Wadsworth, Capt. W. L. THORNTON, Birmingham.

Arkansas

To Camp Crane, Pa., mobile hospital, from Camp Logan, Lieut. J. L. SMILEY, Siloam Springs.
To Camp McClellan, Ala., from Fort Riley, Lieut. C. M. BROOKS, Roland.

California

To Camp Crane, Pa., from Camp Kearney, Capts. W. H. GILBERT, Los Angeles; V. PLETH, Sonora. Base hospital, from Camp Kearney, Lieut. B. W. JOHNSON, Dos Palos.
To Camp Knox, Ky., from Rochester, Minn., Lieut. F. S. RYAN, San Jose.
To Camp McClellan, Ala., base hospital, from Camp Kearney, Capt. T. C. McCLEAVE, Oakland.
To Camp Wheeler, Ga., base hospital, from Fort Oglethorpe, Lieut. H. D. WILLIAMS, San Francisco.
To Fort Oglethorpe, from Camp Kearney, Capt. M. P. BURNHAM, Burlingame. Evacuation hospital, from San Francisco, Capt. A. F. HIGGINS, Sacramento.
To Lakewood, N. J., from Boston, Lieut. O. W. BUTLER, Los Angeles.

Colorado

To Camp Crane, Pa., evacuation hospital, from Camp Pike, Capt. T. L. A. SHAFFER, Salida.
To Camp MacArthur, Texas, from Fort Logan, Lieut.-Col. J. R. BARBER.
To Fort Bliss, Texas, base hospital, from Baltimore, Lieut. L. G. BROWN, Colorado Springs.
To Fort Riley for instruction, Capt. W. McCONNELL, Monument.
To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to Camp Custer, Mich.*, from Fort Riley, Lieut. G. A. ASHBAUGH, Central City.
The following order has been revoked: *To Camp Crane, Pa.*, from Camp Cody, Capt. E. G. GRIFFIN, Denver.

Connecticut

To Camp Crane, Pa., base hospital, from Camp Meade, Lieut. J. F. SAGARINO, Hartford; from Fort Oglethorpe, Lieut. E. T. FALSEY, New Haven.
To Camp Dix, N. J., base hospital, for instruction, from Rockefeller Institute, Lieut. J. T. H. POWERS, Bridgeport.
To Camp Gordon, Ga., base hospital, for instruction, from Fort Oglethorpe, Lieut. R. W. LOVE, Ridgefield.
To Camp Grant, Ill., evacuation hospital, from San Francisco, Capt. W. P. BURKE, New Haven.
To Camp Upton, N. Y., base hospital, from Fort Oglethorpe, Lieut. W. F. REARDON, Hartford.
To Lakewood, N. J., Lieut. H. A. SOLOMON, Waterburg.

Delaware

To Camp Greene, N. C., base hospital, from Camp Dix, Capt. S. M. D. MARSHALL, Milford.

District of Columbia

To Camp Crane, Pa., from Fort Oglethorpe, Major A. B. HOOE, Washington.
To Camp Dix, N. J., from Syracuse, Major J. S. HOUGH, Washington.
To Colonia, N. J., for instruction, from Fort Oglethorpe, Lieut. S. BRICKER, Washington.
To Fort Ontario, N. Y., for instruction, from Camp Sherman, Lieut. J. B. G. CUSTIS, Washington.
To Hoboken, N. J., from Walter Reed General Hospital, Lieut.-Col. A. W. MORSE. Evacuation hospital, from Williamsbridge, Lieut. J. A. CAHILL, Jr., Washington.
To Norfolk, Mass., from the Surgeon-General's Office, Major R. R. WILLIAMS, Washington.
To Washington, D. C., Surgeon-General's Office, from Walter Reed General Hospital, Lieut.-Col. H. J. NICHOLS.

Florida

To Army Medical School for instruction, from Arcadia, Lieut. J. W. EDMONDSON, Arcadia.
To Camp Crane, Pa., mobile hospital, from Camp McClellan, Lieut. W. H. WEIRICH, Jacksonville.
To Camp MacArthur, Texas, for instruction, from Fort Oglethorpe, Lieut. F. W. SCHULTZ, Sarasota.
To Fort Oglethorpe for instruction, Capt. D. FORSTER, New Smyrna.
To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station*, from Camp McClellan, Capt. W. B. MOON, Lakeland.

Georgia

To Camp Crane, Pa., from Camp Pike, Lieut. C. USHER, Savannah; from Fort Sam Houston, Capt. J. D. MANGET, Atlanta. Base hospital, from Camp Dix, Capt. J. K. TRAIN, Savannah; from Fort McPherson, Lieut. W. P. PHILIPS, Oakhurst; from Fort Oglethorpe, Lieut. W. P. ALLEN, Woodbury; from Fort Slocum, Lieut. H. J. PEAVY, Jr., Byron. Evacuation hospital, from New Haven, Lieut. W. H. MALONE, Villa Rica. Mobile hospital, from Camp Wheeler, Capt. W. F. CROSS, Cassville.
To Camp McClellan, Ala., from Camp Wheeler, Lieut.-Col. A. W. SCHOENLEBER. Base hospital, from Fort McPherson, Capt. J. F. DENTON, Atlanta; from Fort Oglethorpe, Lieut. E. L. BISHOP, Savannah.
To Camp Meade, Md., evacuation hospital, from Camp Devens, Lieut. R. L. RHODES, Augusta.
To Camp Sheridan, Ala., base hospital, from Fort Oglethorpe, Lieut. C. B. GREER, Brunswick.
To Camp Upton, N. Y., Capt. F. F. FLOYD, Statesboro.
To Colonia, N. J., from Boston, Lieut. G. Y. MASSENBURG, Macon. For instruction, from Fort Oglethorpe, Capt. J. M. BARNETT, Albany.
To Fort Oglethorpe, base hospital, from Camp Bowie, Capt. T. H. STEWART, Atlanta. Evacuation hospital, from Camp Gordon, Lieut. J. H. CAMPBELL, Jefferson. For instruction, Lieut. J. T. MOORE, Sycamore.
To Pittsburgh, Pa., Carnegie Institute, and University of Pittsburgh, from Camp Meade, Lieut. W. M. GERTMAN, Hazelhurst.
To Roland Park, Md., Capt. J. D. CROMER, Atlanta.
The following order has been revoked: *To report to the commanding general*, Southeastern Department, Lieut. T. M. VORBRINCK, Savannah.

Idaho

To Camp Crane, Pa., from Camp Lewis, Capt. W. S. TITUS, Boise.
To Camp Dodge, Iowa, from Fort Logan, Lieut. C. W. SLUSSER, Grangeville.
To Hoboken, N. J., Capt. H. C. MOWERY, Wallace.

Illinois

To Army Medical School for instruction, from Camp Zachary Taylor, Lieut. W. S. NEEDHAM, Hanna City; from Columbus Barracks, Lieut. H. D. THORNBURG, Chicago.
To Azalea, N. C., from New Haven, Capt. T. A. HOGAN, Chicago.
To Camp Bowie, Tex., base hospital, from Fort Oglethorpe, Lieut. W. W. KUNTZ, Baylis. Base hospital, for instruction, from Fort Oglethorpe, Lieut. I. H. CHILCOTT, Chicago.
To Camp Crane, Pa., from Camp Bowie, Capt. M. PFEIFFENBERGER, Alton; from Camp Dix, Lieut. S. F. KUBALA, Chicago; from Camp Dodge, Capt. W. F. SCOTT, Melrose Park; from Camp Joseph E. Johnston, Lieut. J. T. GREGORY, Chicago; from Camp Logan, Capt. L. P. KUHN, Chicago; Lieut. H. HOFMANN, Chicago; from Camp Pike, Capt. F. A. NORRIS, Jacksonville, from Fort McHenry, Capt. J. B. MOORE, Zeigler; from Fort Oglethorpe, Capt. F. W. BRIAM, Bloomington. Base hospital, from Camp Cody, Lieut. E. B. MILLER, Chicago; from Camp Zachary Taylor, Major W. W. HAMBURGER, Chicago; from Fort Oglethorpe, Capt. E. F. DAUM, Chicago; from New Haven, Lieut. B. G. R. WILLIAMS, Paris. Evacuation hospital, from Camp Gordon, Capt. G. A. LONGBRAKE, Galesburg. Mobile hospital, from Fort Sill, Lieut. J. E. HUNTER, Chicago.
To Camp Custer, Mich., from Camp Grant, Capt. S. F. HENRY, Ellingham.
To Camp Dodge, Iowa, base hospital, for instruction, from Iowa Falls, Capt. W. F. SCOTT, Melrose Park.

To Camp Grant, Ill., Lieut. T. W. RENNIE, Chicago.
To Camp Greene, N. C., base hospital, from Fort Oglethorpe, Lieut. G. E. PFEIFFER, Chicago.
To Camp Hancock, Ga., base hospital, for instruction, from Rockefeller Institute, Lieut. E. H. SEIFERT, Chicago.
To Camp Lee, Va., to examine the command for nervous and mental diseases, from Ann Arbor, Lieut. H. E. RANDOLPH, East Moline.
To Camp McClellan, Ala., from Fort Riley, Lieut. R. C. VERNOR, Nashville.
To Camp Meade, Md., evacuation hospital, from Fort Oglethorpe, Lieut. G. W. ROSS, Watseka.
To Camp Pike, Ark., base hospital, from Fort Oglethorpe, Capt. W. A. PORTER, Chicago.
To Camp Sevier, S. C., as orthopedic surgeon, from Fort Oglethorpe, Lieut. S. P. BLIM, Crete. Base hospital, from Fort Oglethorpe, Lieut. J. N. BUCHANAN, Freeport.
To Camp Shelby, Miss., base hospital, for instruction, from Fort Oglethorpe, Lieut. P. T. DIAMOND, Evanston.
To Camp Wadsworth, S. C., base hospital, from Camp Cody, Major R. T. WOODYATT, Evanston; from Fort Oglethorpe, Lieut. J. F. DEAL, Springfield.
To Camp Zachary Taylor, Ky., field hospital, Lieut. S. WOLF, Chicago.
To Champaign, Ill., from Fort Oglethorpe, Lieut. G. S. GALFORD, Normal.
To Colonia, N. J., for instruction, from Fort Oglethorpe, Lieut. D. C. SIGWORTH, Chicago.
To Detroit, Mich., from Fort Riley, Lieut. H. H. BEIL, Chicago.
To Fort Oglethorpe, evacuation hospital, from Boston, Capt. W. F. McNARY, East St. Louis; from Camp Beauregard, Capt. D. B. HAYDEN, Chicago; from Camp Gordon, Lieut. A. E. HUBBARD, Peoria; from Camp Joseph E. Johnston, Lieut. G. L. McWHORTER, Chicago. For instruction, Lieuts. A. J. C. SCHWARTZ, Chicago; L. W. FULTON, New Berlin.
To Fort Ontario, from Camp Lewis, Lieut. R. W. STEARNS, Chicago; from Camp Zachary Taylor, Lieut. F. F. FRAIDER, Chicago.
To Hoboken, N. J., from New Haven, Lieut. W. A. DANIELSON, La Grange.
To Jefferson Barracks, Mo., from Fort Oglethorpe, Lieut. R. D. LUSTER, Granite City.
To Lakewood, N. J., from Boston, Capt. W. E. SHACKLETON, Chicago.
To Madison Barracks, N. Y., from Williamsbridge, Capt. C. R. SANDERSON, Bloomington.
To Mineola, N. Y., Hazelhurst Field, from Garden City, Lieut. G. C. OTRICH, Belleville. For instruction, Capt. C. M. ROBERTSON, Chicago.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. I. PILOT, Chicago.
To Pittsburgh, Pa., Carnegie Institute, and University of Pittsburgh, from Camp Meade, Lieut. W. F. ALLISON, Paris.
To report to the commanding general, Central Department, from Fort Des Moines, Lieut. H. L. KAMPEN, Monmouth.
To Saltville, Va., from Army Medical School, Lieut. H. L. LeSAULNIER, Red Bud.
To San Diego, Calif., Rockwell Field, from Mineola, Major F. CARY, Chicago.
The following orders have been revoked: *To Camp A. A. Humphreys, Va.*, Lieut. F. E. SENEAR, Chicago. *To Camp Gordon, Ga.*, from Fort Oglethorpe, Capt. W. W. HOYT, Chicago.

Indiana

To Camp Beauregard, La., base hospital, for instruction, from Fort Oglethorpe, Lieut. J. P. GIBSON, Owensville.
To Camp Crane, Pa., from Camp Zachary Taylor, Capt. A. L. BRAMKAMP, Richmond. Base hospital, from Camp Custer, Lieut. C. J. ADAMS, Kokomo; from Camp Sevier, Capt. F. A. TABOR, Terre Haute; from Fort Oglethorpe, Lieut. W. F. CRAFT, Linton; from Walter Reed General Hospital, Lieut. H. L. BELL, Knox. Evacuation hospital, from Camp Dodge, Lieut. R. C. HAMILTON, Indiana Harbor; from Fort Oglethorpe, Capt. E. M. HOOVER, Elkhart.
To Camp Jackson, S. C., base hospital, for instruction, from Fort Oglethorpe, Capt. H. H. WHEELER, Indianapolis.
To Camp McClellan, Ala., from Fort Riley, Capt. C. A. DRESCH, Mishawaka; Lieut. E. O. NEWLIN, Fontanet. Base hospital, from Camp Abraham Eustis, Capt. W. W. ROSS, La Porte; from Fort Oglethorpe, Lieuts. S. F. TEAFORD, Paoli; H. G. WEISS, Rockport.
To Camp Meade, Md., evacuation hospital, from Camp Pike, Capt. O. L. McCAY, Romney.
To Camp Travis, Texas, base hospital, for instruction, from Fort Oglethorpe, Lieut. H. L. CUNNINGHAM, Ashley.
To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieut. F. A. METTS, Bluffton.
To Colonia, N. J., from Walter Reed General Hospital, Lieut. L. C. SAMMONS, Shelbyville.
To Danville, N. Y., from Ann Arbor, Lieut. E. K. HOLT, Longcliff.
To Fort Benjamin Harrison, from Camp Dix, Lieut. O. M. JOHNSON, Kokomo.
To Fort McPherson, Ga., for instruction, from Camp Gordon, Lieut. M. M. MORAN, Portland.
To Fort Oglethorpe, evacuation hospital, from Camp Gordon, Lieut. L. E. SOMERS, Craigville. For instruction, Lieut. M. M. WELLS, Fairland.
To Fort Ontario, N. Y., from Fort Oglethorpe, Lieut. R. L. SMITH, Indianapolis.
To Hoboken, N. J., from Fort Oglethorpe, Lieut. C. B. COMPTON, Michigantown.
To Madison Barracks, N. Y., from Edgewood, Md., Capt. J. L. ALLEN, Greenfield.
To Pittsburgh, Pa., Carnegie Institute, and University of Pittsburgh, from Camp Meade, Lieut. H. H. BOTTS, Colfax.
The following order has been revoked: *To Pittsburgh, Pa.*, from Camp Sevier, Capt. W. E. GEORGE, Indianapolis.

Iowa

To Camp Crane, Pa., from Camp Dodge, Capt. C. S. JAMES, Centerville. Base hospital, from Camp Logan, Lieut. C. H. GRAENING, Waverly. Evacuation hospital, from Camp Devens, Lieut. J. G. CLAPSADDLE, Burt.
To Camp Grant, Ill., base hospital, from Fort Oglethorpe, Capt. H. E. McCALL, Clearfield.
To Camp Lee, Va., from May's Landing, N. J., Major G. R. PLUMMER, Cresco.
To Camp McClellan, Ala., from Fort Riley, Lieut. R. J. MATTHEWS, Clarinda. Base hospital, from Fort Oglethorpe, Lieut. J. J. BEATTY, Farragut.
To Camp Wadsworth, S. C., from Camp Greene, Lieut. G. H. STEELE, Belmont.
To Camp Wheeler, Ga., base hospital, from Fort Oglethorpe, Lieut. C. O. YENERICH, Rockford.
To Camp Zachary Taylor, Ky., field hospital, from Fort Riley, Lieut. J. W. SELLARDS, Clarinda.
To Fort Oglethorpe, evacuation hospital, from Camp Jackson, Capt. G. F. HARKNESS, Davenport.
To Iowa Falls, Iowa, Ellsworth College, from Camp Dodge, Lieut. C. A. MANAHAN, Marengo.
To Washington, D. C., for conference, and on completion *to Detroit, Mich.*, from Fort Des Moines, Lieut.-Col. A. T. COOPER.

Kansas

To Camp Crane, Pa., from Camp Gordon, Capt. A. D. JONES, Wichita. Evacuation hospital, from Camp Devens, Lieuts. H. N. ALEXANDER, F. L. LOVELAND, Topeka; from Fort Oglethorpe, Capt. M. G. SHELLY, Mulvane. Mobile hospital, from Fort Riley, Lieut. C. W. ZUGG, Great Bend.
To Camp Dix, N. J., from Fort Riley, Lieut.-Col. L. R. POUST.
To Camp Knox, Ky., from Camp Cody, Lieut. W. G. BURTON, Wichita.
To Camp McClellan, Ala., from Fort Oglethorpe, Capt. E. A. REEVES, Kansas City; Lieut. R. ALGIE, Linn; from Fort Riley, Lieut. J. B. BLADES, Randall.
To Camp Zachary Taylor, Ky., field hospital, from Fort Riley, Lieuts. M. HALL, McPherson; E. G. PADFIELD, Saline.

Kentucky

To Camp A. A. Humphreys, Va., from Fort Oglethorpe, Lieut. H. C. BLOUNT, Leesburg.
To Camp Crane, Pa., from Fort Oglethorpe, Capt. L. H. KAHN, Louisville. Base hospital, from Camp Meade, Lieut. J. W. MARTIN, LaCenter.
To Camp Meade, Md., as orthopedic surgeon, from Fort Oglethorpe, Lieut. B. A. WASHBURN, Paducah.
To Camp Sheridan, Ala., base hospital, from Fort Oglethorpe, Lieut. E. L. PIRKEY, Louisville.
To Camp Zachary Taylor, Ky., base hospital, from Ann Arbor, Lieut. E. MOORMAN, Harned.
To Fort Oglethorpe for instruction, from duty as a private, Lieut. J. T. P. WICKLIFFE, Wickliffe.
To Mineola, N. Y., Hazelhurst Field, from Camp Wadsworth, Capt. G. A. ROBERTSON, Louisville.

Louisiana

To Camp Crane, Pa., base hospital, from Camp Lee, Lieut. T. LATIOLOIS, New Orleans.
To Camp Custer, Mich., to examine the command for nervous and mental diseases, from Ann Arbor, Capt. T. W. EVANS, Jackson.
To Camp MacArthur, Texas, base hospital, for instruction, from Fort Oglethorpe, Lieut. C. DEAN, Bogalusa.
To Fort Oglethorpe, base hospital, from Camp Beauregard, Lieut. E. S. KEITZ, New Orleans. Evacuation hospital, from Camp Shelby, Capt. R. E. WINDHAM, Merryville.

Maine

To Camp Crane, Pa., base hospital, from Camp Devens, Lieut. J. E. POULIN, Augusta; from Camp Dix, Capt. D. W. WENTWORTH, Sanford; from Camp Lee, Major T. O. VANAMEE, Portland.
To Pittsburgh, Pa., Carnegie Institute, and University of Pittsburgh, from Camp Meade, Lieut. R. W. CLARK, Deer Isle.

Maryland

To Camp Crane, Pa., base hospital, from Camp Meade, Lieut. C. L. LUCKETT, Baltimore.
To Camp John Wise, Texas, from Fort Bliss, Major J. DIBBLE, Fort Washington.
To Camp Meade, Md., base hospital, for instruction, from Rockefeller Institute, Lieut. W. A. DARBY, Baltimore.
To Camp Wadsworth, S. C., base hospital, from Fort Oglethorpe, Lieut. G. B. BROWN, Jr., Baltimore.
To Cape May, N. J., from New York, Lieut. J. H. BAIRD, Baltimore.
To Fort Oglethorpe, evacuation hospital, from Camp Cody, Major H. R. CARTER, Jr., Baltimore.
To Hoboken, N. J., base hospital, from Camp Upton, Lieut. J. G. RUNKEL, Catonsville; from Fort Oglethorpe, Capt. W. H. HOPKINS, Annapolis.
To New Haven, Conn., Yale Army Laboratory School, from Southern Department, Lieut. W. C. VON GLAHN, Baltimore.
To Pittsburgh, Pa., from Army Medical School, Lieut. H. H. WARNER, Baltimore.
To Washington, D. C., Surgeon-General's Office, from Walter Reed General Hospital, Lieut. H. L. QUICKEL, Takoma Park.

Massachusetts

To Aberdeen, Md., from Baltimore, Lieut. H. C. PERKINS, Boston.
To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. M. L. ALLING, Lowell.
To Camp Crane, Pa., from Camp Devens, Lieut. A. R. GARDNER, Lowell; from Camp Jackson, Lieut. W. A. BISHOP, Abington; from Walter Reed General Hospital, Lieut.-Col. F. B. LUND, Boston. Base hospital, from Camp Devens, Lieut. G. A. BUCKLEY, Brockton; from Fort Myer, Capt. E. B. FINCH, Greenfield; from Fort Oglethorpe, Capt. E. FLAGG, Boston; from New York, Lieut. A. J. GANLEY, Methuen. Evacuation hospital, from Camp Dix, Lieuts. C. E. ALLARD, F. C. HALL, Boston.
To Camp Grant, Ill., evacuation hospital, from Camp Beauregard, Lieut. A. N. FREGEAU, Fitchburg.
To Camp Greene, N. C., base hospital, for instruction, from Rockefeller Institute, Lieut. L. C. DURSTHOFF, Lowell.
To Camp Meade, Md., base hospital, from New Haven, Lieut. H. M. BAKER, Boston.
To Camp Sheridan, Ala., base hospital, from Fort Oglethorpe, Lieut. H. E. LYNCH, Holyoke.
To Camp Upton, N. Y., from Camp Sherman, Capt. H. H. SUMNER, Lowell.

To Camp Wadsworth, S. C., base hospital, from Fort Oglethorpe, Capt. G. H. MAXFIELD, Chelsea. Base hospital, for instruction, from Rockefeller Institute, Lieut. J. H. GALLAGHER, Chicopee.

To Camp Wheeler, Ga., base hospital, from Fort Oglethorpe, Capt. R. J. WARD, Worcester.

To Fort Oglethorpe, for instruction, Lieut. J. C. WARD, Marlboro.

To Fort Ontario, N. Y., for instruction, from Fort Oglethorpe, Capt. F. K. SHAW, Concord.

To Lakewood, N. J., from Fort Sill, Lieut. W. F. COTTING, Boston.

The following orders have been revoked: *To Camp Crane, Pa.*, base hospital, from Richmond, Va., Capt. G. L. TOBEY, Jr., Boston. *To Fort Meyer, Va.*, from Camp Wheeler, Lieut. F. C. LEAVITT, Belmont.

Michigan

To Camp Crane, Pa., from Camp Wadsworth, Capt. C. GEORG, Jr., Ann Arbor; from New York, Capt. R. C. STONE, Battle Creek. Base hospital, from Camp Meade, Lieut. W. D. RYAN, Detroit; from Fort Oglethorpe, Lieut. C. F. DUBOIS, Detroit. Evacuation hospital, from Boston, Lieut. C. E. TRUESDELL, Denton; from Camp Custer, Capt. C. D. BROOKS, Detroit; from Camp Grant, Capt. R. J. E. ODEN, Cadillac.

To Camp Grant, Ill., evacuation hospital, from Fort Des Moines, Capt. W. K. REXFORD, Ypsilanti. *To examine the command* for nervous and mental diseases, from Ann Arbor, Capt. P. J. DE PREE, Zeeland.

To Camp Hancock, Ga., base hospital, from Fort Oglethorpe, Capt. F. T. F. STEPHENSON, Detroit.

To Camp Jackson, S. C., base hospital, for instruction, from Fort Oglethorpe, Capt. W. H. FORCE, Ludington.

To Camp Zachary Taylor, Ky., field hospital, from Camp Perry, Capt. H. W. KNAPP, Battle Creek; from Fort Oglethorpe, Capt. J. W. ORR, Flint.

To Colonia, N. J., from Boston, Major N. S. MACDONALD, Houghton.

To Fort Logan, Colo., from Camp Custer, Lieut.-Col. H. M. MELEJAN, Ann Arbor.

To Fort Oglethorpe, evacuation hospital, from Camp Hancock, Lieut. L. H. TOWER, Battle Creek. For instruction, from Camp Logan, Capt. N. J. PIKE, Saginaw.

To Fort Riley for instruction, Capt. D. V. L. GLEYSTEEN, Holland.

To Mineola, N. Y., Hazelhurst Field, from Fort Oglethorpe, Lieut. F. W. HANNUM, Muskegon.

Minnesota

To Camp Crane, Pa., from Camp Dodge, Capt. H. P. BACON, Milaca; from New Haven, Capt. C. R. CHRISTENSON, Starbuck. Base hospital, from Camp Dix, Capt. F. W. BRIGGS, Moorhead; from Fort Oglethorpe, Lieut. F. T. BENOIT, Slayton. Mobile hospital, from Fort Oglethorpe, Capt. A. E. COMSTOCK, St. Paul.

To Camp Custer, Mich., for instruction, from Fort Oglethorpe, Lieut. W. B. MARTIN, Fergus Falls.

To Camp Knox, Ky., from Camp Cody, Capt. O. H. WILCOX, Minneapolis.

To Camp Sheridan, Ala., base hospital, from Fort Oglethorpe, Capt. C. P. ROBBINS, Winona.

To Camp Zachary Taylor, Ky., field hospital, from Fort Riley, Lieut. S. S. HESSELGRAVE, St. Paul.

To Columbus, Ga., from Camp Lee, Lieut. J. R. McVAY, Rochester.

To Fort Oglethorpe, base hospital, from Camp McClellan, Lieut. P. S. EPPERSON, Biwabik. Evacuation hospital, from Camp Sevier, Capt. H. L. ULRICH, Minneapolis.

To Lakewood, N. J., from Washington, Lieut. P. BLANCO, Rochester.

To Rochester, Minn., Mayo Clinic, as instructor, from the Surgeon-General's Office, Col. C. H. MAYO, Rochester.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Zachary Taylor, Ky.*, base hospital, for instruction, from Fort Oglethorpe, Capt. W. J. COCHRANE, Lake City.

Mississippi

To Camp Crane, Pa., base hospital, from Fort Oglethorpe, Capt. J. CRISLER, Jackson.

To Camp Forrest, Ga., from Camp Shelby, Major H. L. ARNOLD.

To Camp Greene, N. C. base hospital, from Camp Sherman, Capt. J. C. ARMSTRONG, Water Valley; from Fort Oglethorpe, Lieut. F. CHAMPENOIS, Hattiesburg.

To Fort Oglethorpe, evacuation hospital, from Camp Gordon, Lieut. H. A. ELKINS, Hardin; from Camp Jackson, Capt. D. L. WALKER, Vosburg.

Missouri

To Camp Abraham Eustis, Va., from Fort Riley, Capt. J. R. MABEE, Huntsville.

To Camp Crane, Pa., from Camp Custer, Capt. C. L. COOPER, Kansas City; from Camp Hancock, Capt. W. J. FERGUSON, Sedalia; from Camp Logan, Lieut. L. P. FORGRAVE, St. Joseph; from Camp Sevier, Capt. H. E. HAPPEL, St. Louis; from Camp Sheridan, Capt. J. R. GREEN, Independence; from Fort Bliss, Capt. C. T. BELL, Maryville; from Fort Sam Houston, Lieut. A. M. GREGG, Joplin. Base hospital, from Camp Dodge, Capt. O. W. KRUEGER, Kansas. Evacuation hospital, from Camp Lee, Lieut. J. B. McCUBBIN, Fulton; from Walter Reed General Hospital, Capt. C. H. HECKER, St. Louis.

To Camp Dodge, Iowa, from Fort Sill, Major F. W. SHAW, Mount Vernon. *To examine the command* for nervous and mental diseases, from Ann Arbor, Lieut. T. N. TOOMEY, St. Louis.

To Camp Kendrick, N. J., from Camp Beauregard, Major W. S. LAWRENCE, St. Louis.

To Camp Meade, Md., from Camp Dodge, Major F. W. SHAW, Mount Vernon. Evacuation hospital, from Camp Logan, Capt. G. A. GRIOT, St. Louis.

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Capt. R. C. HARRIS, St. Louis.

To Camp Wheeler, Ga., from Fort Oglethorpe, Capt. H. B. GETTYS, St. Louis. Base hospital, from Fort Oglethorpe, Capt. J. L. MYERS, Kansas City; Lieut. J. O'CONNELL, St. Louis.

To Camp Zachary Taylor, Ky., field hospital, from Fort Riley, Capt. F. L. OGILVIE, Bloggett.

To Chicago, Ill., from Fort Riley, Lieut. J. H. YOUNG, Ozark.

To Colonia, N. J., for instruction, from Fort Oglethorpe, Lieut. F. E. CHASE, St. Louis.

To Fort Oglethorpe for instruction, from Syracuse, Capt. G. H. MORELAND, Kansas City.

To Lexington, Va., Washington and Lee University, from Nashville, Tenn., Lieut. W. J. BILLETER, Bynumville.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Colonia, N. J.*, for instruction, from Camp Dix, Capt. G. D. McCALL, Fulton.

To Williamsbridge, N. Y., from Fort Oglethorpe, Capt. O. W. CLABAUGH, Sedalia.

Montana

To Camp Crane, Pa., evacuation hospital, from Camp Dodge, Capt. A. T. GILHUS, White Sulphur Springs.

To Fort Oglethorpe for instruction, from New York, Lieut. A. G. BIDDLE, Butte.

To Mineola, N. Y., Hazelhurst Field, from Camp Joseph E. Johnston, Lieut. C. E. WHITEHEAD, Logan.

The following order has been revoked: *To Fort Oglethorpe* for instruction, Major W. C. RIDDELL, Helena.

Nebraska

To Camp Crane, Pa., from Camp Jackson, Major S. R. HOPKINS, Hastings. Base hospital, from Fort Riley, Capt. C. K. GIBBONS, Kearney.

To Camp Greene, N. C., base hospital, from Fort Oglethorpe, Capt. L. C. BLEICK, Omaha.

To Camp MacArthur, Texas, base hospital, from Fort Oglethorpe, Capt. W. P. HANEY, Omaha.

To Camp Pike, Ark., base hospital, from Fort Oglethorpe, Capt. R. P. STOOPS, Scottsbluff.

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Capt. I. W. HAUGHEY, Aurora.

To Camp Wadsworth, S. C., base hospital, from Fort Oglethorpe, Lieut. A. J. BOREN, Hastings.

To Camp Zachary Taylor, Ky., field hospital, from Fort Riley, Lieut. F. N. TOWNLEY, Kenesaw.

To Dallas, Texas, Love Field, from Fort Omaha, Capt. R. CROOK, Winnetoon.

To Fort Riley for instruction, Lieut. A. A. SMITH, Hastings.

New Hampshire

To Camp Crane, Pa., base hospital, from Boston, Lieut. E. A. JONES, Manchester.

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. J. J. BUCKLEY, Milton.

To Camp Sheridan, Ala., base hospital, from Fort Oglethorpe, Capt. P. J. McLAUGHLIN, Nashua.

To Fort Oglethorpe, evacuation hospital, from Camp Wadsworth, Capt. G. C. WILKINS, Manchester.

New Jersey

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Camp Gordon, Lieut. D. A. CURTIS, Paterson.

To Camp Abraham Eustis, Va., from Jackson Barracks, Lieut. E. S. RAMSDELL, Camden.

To Camp Bowie, Texas, base hospital, from Fort Oglethorpe, Lieut. A. W. JUSTIN, Union Hill.

To Camp Crane, Pa., base hospital, from Camp Meade, Capt. F. R. SHEPPARD, Millville.

To Camp Gordon, Ga., base hospital, from Washington, Capt. D. E. WARREN, Passaic. Base hospital, for instruction, from Rockefeller Institute, Lieut. J. N. PANNULLO, Newark.

To Camp Jackson, S. C., base hospital, from Camp Las Casas, Major J. D. LIPPINCOTT, Newark.

To Camp Lee, Va., base hospital, for instruction, from Rockefeller Institute, Lieut. M. KUMMEL, Harrison.

To Camp McClellan, Ala., base hospital, from Camp Greene, Capt. N. K. BENTON, Newark; from Camp Shelby, Capt. E. J. MARSH, Paterson; from Fort Oglethorpe, Lieut. J. S. MARK, Chrome.

To Camp Meade, Md., from Syracuse, Major A. F. THOMPSON, East Orange.

To Camp Sevier, S. C., base hospital, for instruction, from Fort Oglethorpe, Capt. J. W. FARROW, Dover.

To Camp Wadsworth, S. C., base hospital, for instruction, from Fort Oglethorpe, Capt. C. W. EVELETH, West Orange.

To Fort McHenry, Md., from Hoboken, Lieut.-Col. L. J. OWEN.

To Fort Oglethorpe, base hospital, from Camp Meade, Major H. D. CORBUSIER, Plainfield. For instruction, Lieut. R. B. JARRATT, Penns Grove.

To Fort Ontario, N. Y., for instruction, from Camp Dix, Capt. J. F. HAGERTY, Newark.

To Fort Screven, Ga., to examine the command for nervous and mental diseases, from Washington, Capt. F. C. HORSFORD, Newark.

To Hoboken, N. J., Major S. PATON, Princeton; from Baltimore, Lieut. W. A. NEWELL, Trenton.

To Lakewood, N. J., from Boston, Lieut. F. H. CARBER, Newton.

To New York, Cornell Medical College, for instruction, from Camp Holabird, Capt. F. A. FINN, Jersey City.

To Pittsburgh, Pa., for instruction, from Fort McPherson, Capt. P. E. BRUNDAGE, Grantwood.

To Plattsburgh Barracks, N. Y., from Mineola, Lieut. M. S. PATON, Princeton.

To Walter Reed General Hospital, D. C., from Camp Wheeler, Lieut. J. G. DENELSBECK, Trenton.

The following order has been revoked: *To Camp Hancock, Ga.*, base hospital, from Fort Oglethorpe, Lieut. R. J. VREELAND, Clifton.

New Mexico

To Camp Abraham Eustis, Va., from Camp Upton, Capt. A. C. PRATT, Gallup.

New York

To Army Medical School for instruction, from Camp Devens, Lieut. F. F. McGAULEY, Schenectady; from Camp Sevier, Lieut. T. M. CALLADINE, Perry.

To Azalea, N. C., from New Haven, Lieut. J. KAUNITZ, New York.

To Camp Humphreys, Va., base hospital, from Fort Oglethorpe, Lieuts. G. KORNFIELD, Brooklyn; M. KUPPERMAN, New York. *To examine the command* for nervous and mental diseases, from Ann Arbor, Lieut. J. V. SWIERAT, Kings Park; from Washington, Lieut. E. A. EVERETT, Middletown.

To Camp Abraham Eustis, Va., from Fort Oglethorpe, Lieut. S. KULKIN, New York.

To Camp Crane, Pa., from Camp Devens, Lieut. E. F. BRIGGS, Bedford Hills; from Camp McClellan, Lieut. E. W. WILKINS, Albany; from Camp Meade, Lieut. M. BELLIN, Albany. Base hospital, from Camp Devens, Capt. W. M. HALSEY, Oswego; from Camp Lee, Major C. D. NAPIER, Brooklyn; Lieut N. C. MARVEL, New York; from

Fort Oglethorpe, Capts. H. V. HOLCOM, Bellemore; A. S. ARMSTRONG, New York; J. R. BROWNELL, Perry; Lieut. R. L. COOLEY, Buffalo; from New York, Major B. H. WHITBECK, New York; from West Point, Ky., Lieut. L. D. SOPER, Smyrna. Evacuation hospital, from Camp Custer, Major W. M. FORD, New York; from Camp Devens, Lieut. M. A. THOMPSON, Buffalo; from Camp Sherman, R. W. MORIARTY, New York; from Fort Oglethorpe, Lieut. R. J. SHEA, New York.

To Camp Custer, Mich., from New Haven, Major J. S. BILLINGS, New York.

To Camp Dix, N. J., from New Haven, Major B. F. KNAUSE, Brooklyn.

To Camp Jackson, S. C., base hospital, from Camp Dix, Capt. J. C. BIERWIRTH, Brooklyn. Base hospital, for instruction, Lieut. H. COWAN, New York.

To Camp Joseph E. Johnston, Fla., base hospital, from Camp Jackson, Capt. H. V. GUILE, New York.

To Camp Lee, Va., base hospital, from Army Medical School, Lieut. R. E. MYERS, Cableskill.

To Camp McClellan, Ala., base hospital, from Biltmore, N. C., Capt. A. V. MOSCHCOWITZ, New York; from Fort Oglethorpe, Lieut. H. A. VOGEL, Albany. On completion *to the Surgeon-General's Office*, from Washington, Major E. K. DUNHAM, New York.

To Camp Meade, Md., from Syracuse, Lieut. F. N. POTTS, Buffalo. Base hospital, from Fort Oglethorpe, Lieut. G. A. DISTLER, Woodhaven.

To Camp Sherman, Ohio, base hospital, for instruction, from Rockefeller Institute, Lieut. J. G. MORRESSEY, Yonkers.

To Camp Wadsworth, S. C., to examine the command for nervous and mental diseases, from Ann Arbor, Lieut. J. J. LEARY, Utica.

To Camp Wheeler, Ga., from Camp Wadsworth, Major H. R. GAYLORD, Buffalo. Base hospital, from Fort Oglethorpe, Capt. E. W. SHANK, New York.

To Cape May, N. J., from New York, Lieut. S. SILBERT, New York; from Walter Reed General Hospital, Capt. J. KETTERLE, Brooklyn.

To Colonia, N. J., for instruction, from Fort Oglethorpe, Lieut. W. A. BEHAN, Binghamton.

To Columbus, Ga., from Camp Gordon, Major E. A. SOUTHALL, Buffalo.

To Denver, Colo., from New Haven, Capt. H. A. CRAIG, Staten Island.

To Fort Des Moines, Iowa, from Camp Jackson, Major O. M. SCHWERDTFEGER, New York. For instruction, from Fort Oglethorpe, Lieut. H. C. FALK, New York.

To Fort Oglethorpe, as instructor, from Camp Wheeler, Major J. P. O'BRIEN, Albany. Evacuation hospital, from Camp Gordon, Lieut. P. H. J. BUCKLEY, Buffalo; from Camp Hancock, Capt. H. G. DUNHAM, New York; from Camp Jackson, Capts. I. M. HOLLY, Brooklyn; H. S. FINCKE, Long Island City. For instruction, from Camp Greene, Major D. C. WIGGIN, Rosebank.

To Fort Riley, base hospital, from Fort Oglethorpe, Capt. E. ADAMS, New York.

To Hoboken, N. J., from Camp Dix, Lieut. S. B. DOYLE, Brooklyn; from Fort Riley, Lieut. F. D. KEPPEL, Lincklaen. Base hospital, from Camp Devens, Lieut. W. H. HAWKINS, New York.

To Lakewood, N. J., for instruction, from Fort Oglethorpe, Capt. T. D. BUCHANAN, New York.

To Madison Barracks, N. Y., from Washington, Capt. A. E. SOPER, New York.

To Newport News, Va., from Camp Jackson, Lieut. H. F. GOCKLEY, New York.

To Pittsburgh, Pa., Carnegie Institute, and University of Pittsburgh, from Camp Meade, Lieut. J. F. BROWNE, Rochester. Parkview Station, from Camp Lee, Capt. E. F. SIBLEY, Kingston.

To Plattsburg Barracks, N. Y., from Syracuse, Capt. C. S. LITTLE, Thiells.

To Rahway, N. J., from Boston, Mass., Lieut. T. L. McNAMARA, Corning.

To Richmond, Va., Capt. G. N. SLATTERY, New York.

To San Diego, Calif., Rockwell Field, from San Antonio, Major H. S. BARTHOLOMEW, New York.

To White Plains, N. Y., from Camp Las Casas, Major P. B. CONNOLLY, New York.

The following orders have been revoked: *To Fort Oglethorpe* for instruction, Lieut. E. C. MONTGOMERY, Brooklyn. *To New York*, Neurological Institute, for instruction, Lieut. J. RESNIK, New York. *To Rockefeller Institute* for instruction in the treatment of infected wounds, Lieut. P. T. HARPER, Albany.

North Carolina

To Azalea, N. C., from New Haven, Capt. G. S. MacPHERSON, Highlands.

To Camp Crane, Pa., from Camp Bowie, Capt. A. F. REEVES, Asheville.

To Camp Grant, Ill., from Fort Oglethorpe, Lieut. J. B. LEGWIN, Wilmington.

To Camp Hancock, Ga., base hospital, from Fort Oglethorpe, Capt. R. F. YARBOROUGH, Louisburg; Lieut. C. F. STROSNIDER, Goldsboro.

To Camp Lee, Va., base hospital, from Fort Oglethorpe, Lieut. G. C. BATTLE, Asheville.

To Fort McPherson, Ga., from Fort Oglethorpe, Lieut. G. B. LYNCH, Asheville.

To Fort Oglethorpe, evacuation hospital, from Camp Wheeler, Capt. T. A. HATHCOCK, Norwood.

To Washington, D. C., Surgeon-General's Office, from Biltmore, N. C., Lieut.-Col. W. H. SMITH.

North Dakota

To Camp Crane, Pa., evacuation hospital, from Fort Riley, Capt. O. W. McCLUSKY, Carrington.

To Fargo, N. D., North Dakota Agricultural College, Lieut. C. L. CALLANDER, Fargo.

To Fort Oglethorpe for instruction, Lieut. L. A. SHIPFER, Bismarck.

Ohio

To Camp A. A. Humphreys, Va., base hospital, from Fort Oglethorpe, Lieut. M. D. PRUGH, Dayton.

To Camp Beauregard, La., as orthopedic surgeon, from Fort Oglethorpe, Lieut. E. V. BERRY, Newcomerstown.

To Camp Bowie, Texas, from Camp Sherman, Lieut.-Col. H. B. McINTYRE.

To Camp Crane, Pa., from Camp Jackson, Lieut. J. K. HAMILTON, Youngstown. Base hospital, from Fort Oglethorpe, Capts. G. H. IRVIN, Orville; C. L. JONES, Springfield; Lieuts. D. W. FELLERS, Bloomville; O. C. HENDERSON, Portland. Evacuation hospital, from Camp Dix, Lieut. M. E. WILSON, Cincinnati; from Syracuse, Capt. H. B. BLAKEY, Columbus.

To Camp Dix, N. J., base hospital, from Hoboken, Capt. C. D. HOY, Columbus.

To Camp Gordon, Ga., base hospital, from Fort Oglethorpe, Lieut. H. S. THOMPSON, Cleveland.

To Camp Grant, Ill., base hospital, from Fort Oglethorpe, Lieuts. W. H. MILLER, Columbus; C. R. KING, Toledo. Base hospital for instruction, from Fort Oglethorpe, Capt. W. E. GERNHARD, Cleveland. Evacuation hospital, from Camp Cody, Lieut. A. A. STONE, Cleveland.

To Camp Hancock, Ga., base hospital, from Fort Oglethorpe, Capt. H. M. FLOWER, Toledo.

To Camp McClellan, Ala., base hospital, from Fort Oglethorpe, Lieuts. H. SILVER, Middletown; R. E. SINKEY, E. F. VETTER, Toledo.

To Camp Pike, Ark., from Camp Custer, Lieut.-Col. E. F. McCAMPBELL, Columbus.

To Camp Sheridan, Ala., base hospital, from Fort Riley, Capt. E. R. BROOKS, Cleveland.

To Camp Wheeler, Ga., base hospital, from Fort Oglethorpe, Lieut. J. F. WRIGHT, Toledo.

To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Capt. G. W. WILLIARD, Tiffin.

To Fort McPherson, Ga., for instruction, from Camp Crane, Lieut. G. C. GUTHRIE, Uhrichsville.

To Fort Oglethorpe, base hospital, from Camp Cody, Lieut. R. S. REICH, Cleveland. Evacuation hospital, from Camp Sevier, Capt. H. B. DORNBLASSER, Springfield.

To Jefferson Barracks, Mo., from Fort Oglethorpe, Capt. E. M. BROWN, Zanesville.

To Madison Barracks, N. Y., from Camp Meade, Capt. J. A. GOSLING, Tiffin.

To Mineola, N. Y., Hazelhurst Field, for instruction, from Arcadia, Major C. P. GROVER, National Military Home.

To Plattsburg Barracks, N. Y., from Ann Arbor, Lieut. A. E. KISER, Cincinnati.

To report to the commanding general, Central Department, Capt. E. E. BONSTEEL, Warrensville.

To Washington, D. C., from Fort Sam Houston, Lieut. W. R. CHYNOWETH, Dayton.

The following orders have been revoked: *To Camp Crane*, evacuation hospital, from Camp Dix, Lieut. A. N. SMITH, Columbus. *To Camp Hancock, Ga.*, base hospital, from Fort Oglethorpe, Lieut. T. HULICK, Cincinnati. *To Fort Oglethorpe*, base hospital, from Army Medical School, Major R. D. MADDOX, Cincinnati.

Oklahoma

To Biltmore, N. C., from Camp Shelby, Capt. R. E. RUNKLE, El Reno.

To Camp Greene, N. C., base hospital, for instruction, from Fort Oglethorpe, Lieut. S. E. GAYMAN, Tryon. Evacuation hospital, from Fort Oglethorpe, Lieut. C. A. JOHNSTON, Kiowa.

To Camp McClellan, Ala., from Fort Oglethorpe, Lieut. O. G. BACON, Davidson.

North Carolina

To Camp Polk, as sanitary inspector, from Camp Jackson, Capt. J. H. STOLPER, Muskogee.

To Camp Zachary Taylor, Ky., field hospital, from Fort Riley, Lieut. J. R. HOLLIDAY, Oklahoma City.

To New Haven, Conn., Yale Army Laboratory School, Southern Department, Capt. F. B. SORGATZ, Oklahoma City.

To San Antonio, Texas, Kelly Field, from Fort Bayard, Lieut. M. C. COMER, Clinton.

Oregon

To Camp Crane, Pa., from Camp Lewis, Lieut. G. L. BOYDEN, Pendleton. Evacuation hospital, from Camp Lewis, Capt. W. JOHNSTON, Portland.

To Camp Zachary Taylor, Ky., field hospital, from Fort Riley, Lieuts. A. D. MORRISON, Carlton; E. L. ZIMMERMAN, Eugene.

To Madison Barracks, N. Y., from Fort Oglethorpe, Lieut. C. C. PETHERAM, Portland.

To Whipple Barracks, Ariz., from Camp Travis, Lieut. A. T. BLACHLY, Portland.

Pennsylvania

To Camp Abraham Eustis, Va., from Fort Oglethorpe, Lieut. J. G. KOSHLAND, Cassville.

To Camp Bowie, Texas, base hospital, from Fort Oglethorpe, Capt. C. S. AITKEN, Philadelphia.

To Camp Crane, Pa., from Camp Bowie, Capt. S. C. SMITH, Philadelphia; from Camp Hancock, Capt. W. C. MINNICH, McKees Rocks; from Camp Jackson, Lieut. J. D. KEIPER, Johnstown; from Camp Sherman, Capt. W. L. CAMPBELL, New Castle; from Fort Oglethorpe, Capt. T. EVANS, Jr., Pittsburgh. Base hospital, from Camp Jackson, Major E. H. GOODMAN, Philadelphia; from Fort Oglethorpe, Capt. J. B. McMURRAY, Washington; Lieuts. J. M. CORSON, Chatham Run; A. J. CRAIG, Fort Washington; R. J. SAGERSON, Johnstown; from Plattsburg Barracks, Major C. H. HENNINGER, Pittsburgh. Evacuation hospital, from Camp Dix, Lieut. L. C. RUMMAGE, Sweet Valley; from Camp Meade, Capt. O. F. BARTHMAIER, Philadelphia; from New York, Capt. R. J. BEHAN, Pittsburgh; Lieut. R. P. BATCHELOR, Palmerton. Mobile hospital, from Camp Devens, Lieut. J. H. WYATT, Fountain Springs; from Camp Gordon, Lieut. J. W. BURKETT, Moon Run; from Fort Oglethorpe, Lieut. J. H. KREIGER, Harrisburg.

To Camp Custer, Mich., from Camp Grant, Lieut. D. THOMAS, New Kensington.

To Camp Gordon, Ga., base hospital, from Camp Jackson, Major K. A. EMMERLING, Pittsburgh.

To Camp Greene, N. C., base hospital, from Fort Oglethorpe, Capts. W. B. DENSLOW, Pittsburgh; F. S. ULLOM, Waynesburg; Lieut. T. J. McGURL, Minersville.

To Camp Hancock, Ga., base hospital, for instruction, from Fort Oglethorpe, Lieut. A. H. JAHN, Pittsburgh.

To Camp McClellan, Ala., from Camp Upton, Major H. P. BROWN, Philadelphia. Base hospital, from Fort Oglethorpe, Capt. G. F. TUCKER, Pittsburgh.

To Camp Meade, Md., as orthopedic surgeon, from Camp Beauregard, Lieut. T. S. MEBANE, Wilkes-Barre. Base hospital, from Fort Oglethorpe, Lieuts. C. C. KEMBLE, Erie; B. BOROW, Philadelphia; J. K. WAGENSELLER, Pittsburgh; L. B. ROBERTS, Scranton. Base hospital, for instruction, from Washington, Capt. R. R. DECKER, Orbisonia. Evacuation hospital, from Camp Beauregard, Lieut. J. CAMP, Foxburg.

To Camp Sevier, S. C., base hospital, from Camp Custer, Capt. G. M. BOYD, Philadelphia.

To Camp Sheridan, Ala., base hospital, from Fort Oglethorpe, Lieut. J. C. HARTMAN, Philadelphia.

To Camp Travis, Texas, base hospital, from Fort Oglethorpe, Lieut. J. L. RICHARDS, Philadelphia.

To Camp Upton, N. Y., to examine the command for nervous and mental diseases, from Ann Arbor, Lieut. J. M. MIRMAN, Philadelphia.

To Camp Wadsworth, S. C., base hospital, from Camp Abraham Eustis, Lieut. J. M. STEWART, Marion Center; from Fort Oglethorpe, Lieuts. J. J. SWEENEY, Heckscherville; C. W. RICE, Northumberland.

To Camp Wheeler, Ga., base hospital, from Fort Oglethorpe, Lieut. T. H. HARTER, East Brady.

To Cape May, N. J., from New York, Lieut. R. C. BUERKI, Philadelphia.

To Dansville, N. Y., from Ann Arbor, Lieut. J. A. MERIWETHER, Philadelphia; from Syracuse, Lieut. J. E. DWYER, Polk.

To Fort Bayard, N. M., as instructor, from Camp Fremont, Major R. BEW, Gettysburg.

To Fort Benjamin Harrison, from Detroit, Capt. A. B. SHATTO, York.

To Fort McHenry, Md., from Richmond, Va., Major G. C. BOUGHTON, Erie.

To Fort McPherson, Ga., for instruction, from Rockefeller Institute, Capt. H. C. UPDEGRAFF, Pittsburgh.

To Fort Oglethorpe, evacuation hospital, from Camp Hancock, Capt. W. W. HULL, Williamsport; Lieuts. W. H. KELSEA, East Brady; R. W. JOHNSON, Selinsgrove; R. B. McCAY, Sunbury; from Camp Lee, Lieut. E. P. LONGAKER, Philadelphia. For instruction, Lieut. K. I. KURZ, Philadelphia; from Saltville, Va., Capt. C. H. CLOUD, Philadelphia.

To Fort Sill, Okla., base hospital, from Fort Oglethorpe, Capt. E. L. ERHARD, Glassport.

To Hoboken, N. J., from New Haven, Capt. H. K. CAREY, Philadelphia. Evacuation hospital, from Camp Dix, Lieut. W. E. GARDNER, Pittsburgh.

To Lakewood, N. J., Lieut. J. M. ODELL, Philadelphia.

To Madison Barracks, N. Y., from Ann Arbor, Lieut. W. L. HAIR, Roaring Springs; from Camp Abraham Eustis, Lieut. A. R. ROZPLOCH, Chester.

To Mineola, N. Y., Hazelhurst Field, for instruction, Capt. W. MARSHALL, Pittsburgh.

To New York, Neurological Institute, for instruction, from Washington, Lieut. C. A. LEY, Pittsburgh.

To Walter Reed General Hospital, D. C., from Boston, Lieut. J. L. LIVINGOOD, Philadelphia.

Philippine Islands

To New Haven, Conn., Yale Army Laboratory School, from San Francisco, Major H. G. MAUL, Manila.

Rhode Island

To Camp Crane, Pa., evacuation hospital, from Camp Meade, Lieut. F. A. COUGHLIN, Providence.

To Camp Wadsworth, S. C., base hospital, from Fort Oglethorpe, Lieut. W. W. STREET, Providence.

To Fort Oglethorpe, evacuation hospital, from Camp Sevier, Major G. W. GARDNER, Providence.

South Carolina

To Camp Joseph E. Johnston, Fla., from Camp Wadsworth, Lieut. W. A. BROWN, Georgetown.

To Madison Barracks, N. Y., from Fort Oglethorpe, Capt. M. CROOK, Spartanburg.

South Dakota

To Camp Crane, Pa., from Camp Dodge, Lieut. R. G. STEVENS, Sioux City; from Camp Grant, Lieut. B. H. SPRAGUE, Huron.

To Camp Dix, N. J., base hospital, from Camp Crane, Capt. W. D. FARRELL, Aberdeen.

To Camp Shelby, Miss., base hospital, from Fort Oglethorpe, Lieut. F. I. PUTMAN, Sioux City.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to Camp Grant, Ill.*, base hospital, for instruction, from Camp Cody, Capt. R. W. MULLEN, Florence.

Tennessee

To Columbus Barracks, Ohio, from Ann Arbor, Lieut. J. P. SCHELL, Nashville.

To Fort McPherson, Ga., from Ann Arbor, Lieut. P. J. TRENTZSCH, Rives.

To Hoboken, N. J., base hospital, from Camp Dix, Capt. S. MEEKER, Memphis.

The following order has been revoked: *To Fort Oglethorpe* for instruction, Capt. J. OVERTON, Nashville.

Texas

To Azalea, N. C., from Camp Bowie, Capt. J. W. HALE, Waco.

To Camp Beauregard, La., from Camp Travis, Capt. A. M. FREELS, Denison.

To Camp Bowie, Texas, base hospital, Lieut. T. A. DICKSON, Houston.

To Camp Crane, Pa., from Camp A. A. Humphreys, Capt. W. P. CONNALLY, McGregor; from Camp Beauregard, Capt. H. M. LANHAM, Waco; from Camp Gordon, Capt. D. A. MANN, Beaumont; from Camp Pike, Lieut. W. G. TENERY, Waxahachie; from Camp Sheridan, Capt. A. M. McELHANNON, Sherman; from Syracuse, Capt. E. B. KENNER, Galveston. Base hospital, from Fort Oglethorpe, Lieuts. G. G. CASTLEBERRY, Post; I. E. COLGIN, Waco. Evacuation hospital, from Fort Oglethorpe, Lieuts. F. B. SEWALL, Marlin; D. M. STONE, San Antonio. Mobile hospital, from Army Medical School, Capt. E. V. POWELL, Fort Worth.

To Camp McClellan, Ala., base hospital, from Fort Oglethorpe, Lieut. J. O. ROGERS, Red Oak.

To Camp Travis, Texas, from Camp McClellan, Lieut. T. P. LYNCH, Coleman.

To Camp Upton, N. Y., to examine the command for nervous and mental diseases, from Ann Arbor, Lieut. R. A. THARP, Austin.

To Charleston, S. C., from Camp Sevier, Capt. C. B. McGLUMPHY, Galveston.

To Colonia, N. J., from Boston, Lieut. O. N. MAYO, Belton.

To Fort Bliss, Texas, base hospital, from Fort Sam Houston, Lieut. T. C. TERRELL, Fort Worth.

To Fort Oglethorpe, base hospital, from Camp MacArthur, Lieut. R. M. FANCHER, Houston. Evacuation hospital, from Camp Logan, Lieut. W. TRAYLOR, San Antonio.

To Fort Sam Houston, Texas, from Camp Travis, Lieut. F. A. ALLIN, San Antonio.

To Lakewood, N. J., from Baltimore, Lieut. M. H. GLOVER, Wichita Falls.

To Madison Barracks, N. Y., from Ann Arbor, Lieut. C. W. STEVENSON, Lorain.

To Mineola, N. Y., Hazelhurst Field, from Camp Meade, Capt. L. C. G. BUCHANAN, Big Springs.

To Rantoul, Ill., Chanute Field, from Fort Oglethorpe, Capt. H. H. ALLDREDGE, Higgins.

Utah

To Fort Oglethorpe for instruction, Lieut. G. W. GOINS, Tocele.

To Hoboken, N. J., from Fort McHenry, Major S. C. BALDWIN, Salt Lake City.

Vermont

To Camp Crane, Pa., from Camp Shelby, Capt. J. P. GIFFORD, Randolph.

To Camp Logan, Texas, base hospital, for instruction, from Fort Oglethorpe, Lieut. J. R. GRIMES, Montpelier.

To Camp McClellan, Ala., to examine the command for nervous and mental diseases, Capt. E. O. CROSSMAN, Burlington.

Virginia

To Azalea, N. C., from New Haven, Lieut. W. E. BROWN, Salem.

To Camp Cody, N. M., as orthopedic surgeon, from Boston, Capt. L. N. HARRIS, Harrisonburg.

To Hoboken, N. J., base hospital, from Camp Wheeler, Capt. J. W. WHITE, Norfolk.

To Middletown, Pa., from Camp Dix, Capt. G. H. THOMAS, Staunton.

To Camp Crane, Pa., from Camp Lewis, Capt. E. L. INGERSOLL, Spokane. Base hospital, from Camp Custer, Capt. J. M. HENDERSON, Seattle; from Camp Lewis, Major F. P. GARDNER, Seattle; Lieut. J. H. CRAMPTON, Spokane.

To Washington, D. C., from Vancouver Barracks, Lieut.-Col. J. W. SHERWOOD.

West Virginia

To Camp Crane, Pa., from Camp Travis, Lieut. O. H. GRIFFITH, Parkersburg; from Fort Oglethorpe, Lieut. B. H. SWINT, Charleston. Base hospital, from Camp Custer, Major J. E. CANNADAY, Charlestown. Evacuation hospital, from Camp Lee, Capt. E. A. HILDRETH, Wheeling; from Fort Myer, Capt. J. B. KIRK, Bluefield.

To Camp Dix, N. J., base hospital, from New York, Major L. C. COVINGTON, Charleston.

To Camp Wheeler, Ga., base hospital, from Fort Oglethorpe, Lieut. W. A. NOBLE, Welch.

To Fort Oglethorpe, base hospital, from Camp Bowie, Lieut. E. B. HENSON, Charleston.

To Mineola, N. Y., Hazelhurst Field, from Riverside, Calif., Lieut. H. R. PARKER, Williamson.

Wisconsin

To Camp Cody, N. M., base hospital, from Fort Bayard, Capt. L. J. BENNETT, Port Atkinson.

To Camp Crane, Pa., from Camp Joseph E. Johnston, Capt. G. E. THOMPSON, Kenosha. Base hospital, from Camp Custer, Capt. J. G. TAYLOR, Milwaukee.

To Camp Gordon, Ga., base hospital, from Fort Oglethorpe, Capt. O. H. FOERSTER, Milwaukee.

To Camp Grant, Ill., evacuation hospital, from Camp Custer, Lieut. H. McCABE, Milwaukee.

To Camp McClellan, Ala., from Fort Riley, Lieut. P. M. ROSS, Milwaukee. Base hospital, from Fort Oglethorpe, Capt. N. ANDREWS, Oshkosh.

To Camp Meade, Md., base hospital, from Fort Oglethorpe, Lieut. F. M. ROHOW, Ashland.

To Camp Wadsworth, S. C., base hospital, from Fort Oglethorpe, Capt. A. O. SANDERS, Superior.

To Fort Benjamin Harrison, base hospital, from Camp Pike, Capt. E. F. BAUR, Milwaukee.

To Fort Oglethorpe, evacuation hospital, from Camp Zachary Taylor, Capt. C. U. SENN, Ripon.

To Mineola, N. Y., Hazelhurst Field, for instruction, from Dallas, Capt. C. W. ANDREWS, Waupaca.

To Pittsburgh, Pa., Carnegie Institute, and University of Pittsburgh, from Camp Meade, Capt. H. A. RICE, Gays Mills.

To San Antonio, Texas, Brooks Field, from San Diego, Capt. F. W. POPE, Racine.

To Washington, D. C., Surgeon-General's Office, for instruction, from Fort Riley, Capt. T. L. HARRINGTON, Milwaukee.

ORDERS TO OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Passed Asst. Surg. J. H. LINSON, relieved at Boston, Mass., proceed to Washington for duty in the division of venereal diseases.

Asst. Surg. C. J. McDEVITT, report to Surgeon W. C. Billings for duty in suppression of influenza.

Asst. Surg. G. C. LAKE, proceed to Chicago, Ill., and other necessary points for observation in regard to vaccine against influenza and pneumonia.

Asst. Surg. CHARLES ARMSTRONG, proceed to Albany, N. Y., for duty in measures for the control of influenza.

Asst. Surg. R. C. WILLIAMS, relieved from further duty on Bureau of Mines car. Proceed to Chicago, Ill., for duty in the control of influenza.

Prof. E. B. PHELPS, proceed to Chicago, Ill., and other necessary points in the vicinity of the Chicago Drainage Canal to assist in making plans for sewage disposal.

Acting Asst. Surg., ORLANDO DUCKER, proceed to Richmond, Va., for the duty in control of influenza.

Acting Asst. Surg. GEORGE HAYS, relieved at Chester, Pa., proceed to Columbia, S. C., for duty in influenza control.

Acting Asst. Surg., WILLIAM RICE, proceed to St. Louis, Mo., for duty at the Marine Hospital.

Dr. CAROLINE ROSENBERG, proceed to Wilmington, Del., for duty in influenza control.

Acting Asst. Surg. E. W. SCOTT, proceed to Columbus, Ohio, and other necessary places for duty in influenza control.

Acting Asst. Surg., FRANKLIN F. WALTERS, proceed to Newberry, S. C., for duty in influenza control.

Acting Asst. Surg. W. A. WILSON, proceed to necessary places in the State of New Jersey to organize venereal disease relief measures.

Phar. W. G. BEUCLER, proceed to Washington, D. C., for duty in the office of field investigations of industrial sanitation.

Sanitary Engr. A. F. STEVENSON, proceed to Framingham, Mass., for conference in regard to milk pasteurization.

Scientific Asst. GEORGE A. DECELL, proceed to Washington, D. C., for duty in compiling statistics relative to influenza and other communicable diseases.

Scientific Asst. SAMUEL SAUNDERS, relieved at Brunswick, Ga., proceed to Washington, D. C., for duty in control of influenza.

Regional Field Director G. C. CAREY, proceed to Albany, New York City, Trenton, Wilmington, Baltimore and Washington and other points in the States of New York, New Jersey, Delaware and Maryland for duty in campaign of venereal instruction.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

DISTRICT OF COLUMBIA

Inroads of the War on School Medical Inspection Staff.—Soon after the entrance of the United States into the war, Dr. Prentiss Willson and Dr. Albert Ridgely, medical inspectors of schools, entered the Army Medical Service. During the past summer, Dr. John Thomas was commissioned and sent to camp, and during the past few weeks Dr. Joseph A. Murphy, chief medical and sanitary inspector of schools, was ordered to Camp Jackson, S. C., and Dr. H. C. Macatee, to duty at U. S. Naval Dispensary, Washington, D. C.

Curtailment of Medical Society Activities.—The Medical Society of the District of Columbia has long prided itself on maintaining meetings every week from October to May, always with interesting programs and good attendance. The securing of programs has become increasingly difficult owing to the absence of so many active workers now serving in the Army or Navy and to the increasing professional burdens of those physicians who remain. It has been necessary to abandon the meeting altogether during the influenza epidemic because of nonattendance, and it will probably be necessary to hold semimonthly meetings hereafter because of the dearth of scientific material. The society has remitted the dues of all members in active service with the Army and Navy, and in view of this reduction in the society's revenues it will be necessary to reduce the size or frequency of publication of the *Washington Medical Annals.*

Medical Care of Employees of the Navy Department.—A very large part of the increased clerical force of the Navy Department has been secured by the enlistment of both men and women as yeomen. These employees receive the regular Navy pay for their respective ratings and are given subsistence allowance in lieu of quarters and mess privileges. Being enlisted personnel, they are entitled to medical care and thus the Naval Dispensary has become an important adjunct to the Navy Department. The dispensary has recently removed to commodious quarters near Seventeenth Street and New York Avenue N.W., within easy walking distance of the various buildings housing the Navy Department. There are departments for internal medicine, minor surgery, gynecology, ophthalmology and otolaryngology, dentistry, and a very complete pharmacy. Enlisted men requiring hospital care are sent to the Naval Hospital, while enlisted women are sent to the Georgetown University Hospital under a contract arrangement. The dispensary is under the command of Capt. J. B. Dennis, M. C., U. S. Navy.

Influenza Epidemic Abating.—Washington is emerging from the influenza epidemic as from a bad dream. As is the common experience, the last week in September ushered in the disease and the last week in October finds little to do but clear up the wreckage of the storm. The epidemic found the community totally unprepared to cope with it; the depleted medical profession was unable to meet the situation fully and quickly became further depleted by illness of the doctors themselves; four physicians died, Drs. William E. Turton, Thomas Miller, Jr., Thomas B. Kramer, and Thomas S. D. Grasty, all of these having quickly fatal pneumonia. The local hospitals broke down during the first ten days of the epidemic, partly because overcrowded, but mainly because the nursing staffs suffered so severely from the disease. The Medical Society of the District of Columbia last spring realized the situation that an epidemic would create in this city and urged that a temporary hospital for the civilian population be provided; this recommendation being based on the fact that the population of Washington has been suddenly increased by nearly 150,000, mostly war workers, and that the majority of these people are living as lodgers without the most elementary necessaries to cope with an illness. Nothing came of this suggestion, but the present emergency made the need most apparent and the Public Health Service has established a large hospital for the treatment of influenza and this hospital has done a most important work. It is hoped that it may be maintained during the continuance of the war; for its value has already been amply demonstrated. The measures taken to combat the disease were: collaboration between the U. S. Public Health Service, represented by Dr. H. S. Mustard, and the local health department; the declaration of the District of Columbia as a sanitary zone; making influenza a reportable disease and requiring the segregation of persons suffering with it; closing of schools, churches, theaters, and other places of public assemblage; liberal placarding in streets and public buildings and grounds of information and advice regarding the mode of spread of the disease; the establishment of centers under the Public Health Service where immediate medical and nursing assistance could be obtained. In spite of all this the impression is current that the epidemic has simply burnt up all the available susceptible fuel and has passed on to new areas.

GEORGIA

Returns from France.—Major Edward C. Davis, formerly of Atlanta, and organizer of the Emory Unit of the ambulance service, is expected home from France in a short time.

Personal.—Dr. Jarrett W. Palmer, Ailey, was elected president, Dr. Alfred F. White, Flovilla, vice president, and Dr. Charles T. Nolan, Marietta, secretary-treasurer, of the Georgia State Board of Medical Examiners, at its meeting held in Atlanta, October 9.——Dr. Ferdinand N. Ware, Thomson, is reported to be critically ill as a result of a cerebral hemorrhage.

ILLINOIS

Arrest Illegal Practitioner.—Milton A. Chaiken of Joliet was arrested by the Department of Registration and Education of the State of Illinos for writing prescriptions and signing thereto the name of a licensed physician. He was fined $75 and cost on one charge. Six more charges against him are pending.

Chicago

Tuberculosis Institute.—At the meeting of the executive committee of the Chicago Tuberculosis Institute, held October 24, Dr. Herbert W. Gray was unanimously elected attending physician for the Edward Sanatorium, Naperville. Dr. Gray will also examine all applicants for admission to the institution at his office in Chicago.——Dr. Ethan Allen Gray still continues as consultant to the Edward Sanatorium. The Fresh Air Hospital and the Edward Sanatorium have entered into close cooperation, to the great advantage of the patients and institutions.

Fines and Imprisonments.—Judge Edmund Jerecki of the Municipal court, October 23, had arraigned before him four druggists and three physicians for alleged violation of the state medical practice act. "Dr." Jacob Bond is said to have been fined $200 and costs, on the charge of two complaints, and to have been sent to Bridewell on account of inability to pay the fine; "Drs." Julian Portes and Lorenz Girmhuber were said to have been fined each $25 and costs, and four druggists, charged with employing unlicensed men as registered pharmacists, were fined court costs.

INDIANA

Hospital Notes.—Plans are being completed for a hospital in Terre Haute, adjoining the Terre Haute Hospital to accommodate at least 100 patients. It is stated that this building is to be used for the care of invalided soldiers.—— The west wing of the old City Hospital, Indianapolis, has been remodeled at a cost of $3,000. This wing will be used for contagious diseases only.—— The Methodist Episcopal Hospital, Indianapolis, has placed one of its buildings in use as an influenza hospital.

Personal.—Dr. U. Willard Reed, Topeka, suffered a slight cerebral hemorrhage recently.—— Dr. Edwin W. Dyar, Ossain, was operated on in the Lutheran Hospital, Fort Wayne, for appendicitis, October 21, and is reported to be doing well.—— Dr. Carl L. Souder, Columbia City, was operated on in the Lutheran Hospital, Fort Wayne, October 19, for sinusitis.——Dr. Joseph N. Jerome has been appointed city health officer of Evansville, to succeed Dr. William E. Barnes, who has entered the military service. ——Dr. Edmund C. Hack, Pence, is under treatment at the Lakeview Hospital, Danville.——Dr. Leo W. Roller, North Manchester, has accepted a position as city physician of Cleveland, Ohio.

KANSAS

Personal.—Dr. Alfred F. Yohe, physician at the Federal Penitentiary, Leavenworth, for nearly thirteen years, a member of the federal parole board, has resigned and has been succeeded for the time being by Dr. Jacob L. Everhardy.—— Dr. Thomas J. Carter, Wichita, has been elected president of the Friend's Board of Kansas.

MARYLAND

Personal.—Dr. J. Knox Insley of Baltimore, who has been seriously ill with influenza that developed into pneumonia, is reported, the city health commissioner has partially lifted the Mason Knox, Jr., has returned to his home in Guilford, after a year spent in the Children's Bureau of Civilian Relief Work of the American Red Cross.

Volunteers of America Close Hospital.—After successfully conducting an emergency hospital at the headquarters of the Volunteers of America for the treatment of homeless sufferers from influenza and pneumonia, Capt. John Logan has announced that his hospital is closed, after having been in operation eleven days. During that time thirteen patients died, while thirty-five were discharged as cured.

Influenza Ban Lifted.—Owing to the great decrease in the number of deaths from influenza, as well as of new cases reported, the city health commissioner has partially lifted the ban which has been in effect for about two weeks. Unless there is another outbreak of the epidemic, the public schools, private schools, and colleges will be opened by the middle of the week. The ban has been entirely lifted on places of public worship, while it is partially lifted for department stores, theaters and motion picture parlors. The ban on saloons, cafés, retail liquor stores and nonessential assemblages is still existing. According to the official records at the health department, yesterday, there were 115 deaths reported, where influenza and pneumonia were given as the cause. There were also 257 new cases of influenza, as compared with 136 deaths and 304 new cases for a similar period for the day before. The total number of deaths from all causes announced for this period of time was 150 as compared with 171 for the period of twenty-four hours immediately preceding. The conditions throughout the state were reported by Dr. C. Hampson Jones, Baltimore, of the state board of health, as greatly improved and there were signs of an appreciable abatement in the epidemic.

The Baltimore Fund.—The trustees of the Baltimore fund have made a report on the first year's work on this fund, which was founded in April, 1917. During the year it received pledges amounting to $700,054.95, cash total, $323,495.90, and paid out $280,011.32, for free local charity organizations and the Baltimore Chapter of the Red Cross. Of the disbursements, $12,942.47 was paid to the Baltimore Chapter of the Red Cross for home service, that is to say, assistance to families of Baltimorians in the Army and Navy. For the work devoted to babies and the Babies' Milk Fund Association, $20,273.16 was appropriated. To the Federated Charities for the relief of family distress, $95,997.12 was expended. The Friendly Inn Association recorded 9,933 "service days" for 710 men, provided 15,461 night lodgings, and 35,133 meals. For restoring a family life to children $35,944.16 was appropriated to the Henry Watson Children's Aid Society. The Instructive Visiting Nurse Association expended $10,030.99 of the fund, visited 11,292 new patients, and made a total of 56,939 visits. To the Prisoners' Aid Association $13,991.64 was appropriated. Among other agencies in which the trustees of the Baltimore Fund are interested are the Maryland Tuberculosis Association, the Social Service Corporation, the Boy Scouts of America, Public Athletic League neighborhood work for which $36,138.17 was appropriated. For the problems of mental disorders and of feeblemindedness $3,353.49 was appropriated. For the Mothers' Relief Society, which gives medical care for poor mothers, $2,608.87 was appropriated. The trustees appropriated $2,135.03 to the Travelers' Aid Society. The Alliance of Charitable and Social Agencies, to unify and coordinate efficiency, economy, and cooperation in social work was given $15,692.95.

MINNESOTA

Personal.—Dr. Arthur E. Nichols, St. Paul, medical inspector in the state health department, has been appointed director of school hygiene to succeed Dr. William J. Little.

Southern Minnesota Physicians to Meet.—The annual meeting of the Southern Minnesota Medical Association will be held at Mankato, November 25 and 26, under the presidency of Dr. E. Starr Judd, Rochester.

Memorial to Wesbrook.—The faculty of the Medical School of the University of Minnesota, Minneapolis, has adopted a memorial to its former dean, Frank Fairchild Wesbrook, M.A., C.N., M.D., whose death was noted in THE JOURNAL of October 26, page 1428, bearing testimony to his qualities as a scientist in medicine, as a leader and administrative officer, and as a councilor and friend.

NEW YORK

New York City

Personal.—Dr. George H. Chaffee, who practiced medicine for many years in Brooklyn, has removed to Binghamton.—— Mr. Robert E. Cusack has brought suit in the supreme court against Dr. Robert T. Morris for $250,000 damages, charging him with having removed surreptitiously a part of his body during an operation and engrafted the same on the body of an unnamed person. Dr. Morris declares that he operated on Cusack skilfully and successfully for a double hernia and that the allegations are without foundation.

Commission to Study Influenza.—Governor Whitman has appointed a commission to study and report on the cause prevention and treatment of influenza. Among those asked to serve are the Surgeon-Generals of the Army, Navy and Public Health Service; Dr. Rufus I. Cole of the Rockefeller Institute; Dr. Walter B. James, president of the New York Academy of Medicine; Dr. Hermann M. Biggs, New York State Commissioner of Health, and Dr. William H. Park, director of the research laboratories of the New York City Department of Health.

Influenza on the Decrease.—Reports from the health department, October 25, show that the epidemic of influenza is on the wane. A smaller number of cases are being reported and the number of discharges from the hospitals is exceeding the number of admissions. Since the health department began recording epidemic figures about 90,000 cases of influenza have been reported, with 5,984 deaths therefrom. The figures tabulated by the New York State Department of Health show the total number of deaths in the state, exclusive of New York City, for the first twenty-two days of October, as a result of the influenza epidemic, were 4,543, of which 3,313 were attributed to influenza and 1,230 to pneumonia. To the above date 96,110 cases of influenza have been reported in the state outside of the city of New York.

PENNSYLVANIA

Hospital News.—The Ellwood City Hospital, August 12, dedicated its new home which cost upward of $35,000.—— The physicians of Bethlehem have purchased the Weiss property on East Broad Street for $26,500, and will alter the residence for hospital purposes.

Personal.—Dr. C. M. Richert of Millersville and Harrisburg has been appointed associate chief medical inspector of the state board of health.——Dr. Walter F. Donaldson, Pittsburgh, has been elected treasurer and also director of the Allegheny County Medical Society, to fill the unexpired term of Dr. William C. Bryant, who has entered the service

Influenza in Coal Regions.—Figures from the Anthracite Bureau of Information indicate that there is danger that the 1,000,000 tons gain in the mining of hard coal so far this year over the output of last year may be lost if the epidemic of influenza is not quickly checked. No section of the country has been so hard hit by the epidemic as the southern anthracite district, embracing Schuylkill and Northumberland counties. Reports show that since the epidemic broke out, October 4, there have been 2,200 deaths in these counties, one in every 145 of population. In Schuylkill County there are more than 1,500 orphans and 500 in Northumberland. As a result of the disease in Minersville, with a population of 6,000, there are 200 orphans. A peculiar feature is the fact that the epidemic was particularly virulent in the southern anthracite fields while the northern was not nearly so badly affected. In Wilkes-Barre there have been only fifty deaths. In Hazleton, October 26, there were 1,500 cases in the town, and 2,500 in the surrounding country. In Scranton up to October 25 from the beginning of the epidemic, October 5, there have been 4,250 cases reported, with 239 deaths. A detachment of more than 100 medical officers from Camp Crane, Allentown, have been in the region for ten days but now are gradually being withdrawn. According to reports to the state health department, October 26, the epidemic of influenza was rapidly growing worse in the southern bituminous coal fields and in Somerset County.

Philadelphia

Personal.—Drs. James M. Anders and L. Webster Fox have been elected trustees of the Polyclinic Hospital.——Dr. Charles J. Hatfield, who has served for the last four years as executive secretary of the National Tuberculosis Association, has been made managing director.——Dr. Luther C. Peter was elected secretary of the American Academy of Ophthalmology and Oto-Laryngology at its meeting in Denver, August 5 and 6.

Quarantine Lifted.—Dr. Benjamin F. Royer, Harrisburg, acting commissioner of health, telegraphed Dr. Wilmer Krusen, director of health and charities, that the ban might be entirely lifted, October 30. Although church services are to be permitted, no public funerals will be permitted, in fact the same regulations must govern funerals as are observed in cases where death has resulted from diphtheria or scarlet fever. The deaths from influenza and kindred diseases for the last six weeks have been as follows:

Week ended	Influenza	Pneumonia	Broncho-pneumonia
September 20	8	17	15
September 27	73	44	32
October 4	399	225	78
October 11	1,797	687	251
October 18	2,953	1,199	446
October 25	1,839	776	406
Totals	7,069	2,948	1,228

RHODE ISLAND

Fiske Fund Prize Essay.—At the annual meeting of the Rhode Island Medical Society, June 6, the trustees of the Fiske Fund proposed the following subject for the prize essay for 1919: "Recent Classification and Treatment of Pneumonia." The prize for the best essay is $200. The conditions of the competition are that each competitor must forward to the secretary of the trustees, on or before May 1 of the year of the competition, a copy of his dissertation with a motto, accompanied by a sealed letter with the same motto on the outside and the name of the competitor on the inside; the successful competitor must transfer to the trustees all his right, title and interest in the essay for the use and benefit of the Fiske Fund before he will receive the amount of the premium. The unsuccessful competitors may have their essays returned. The trustees are Drs. Gardner T. Swarts, John M. Peters and Jesse E. Mowry, all of Providence. Dr. Peters is secretary.

VERMONT

Personal.—Dr. Daniel J. Nolan, Burlington, who has been seriously ill with pneumonia, is reported to be convalescent.

Poliomyelitis.—The bulletin of the Vermont State Board of Health for the quarter ending September, 1918, is devoted almost wholly to a complete analysis of poliomyelitis as it occurred in the state in 1916 and 1917. The article is by the late Dr. Charles S. Caverly, Rutland, president of the state board and contains much valuable information in regard to the disease, the manner in which it was handled and the results.

CANADA

New Hospital.—The Salvation Army has purchased a private residence in Windsor, Ont., and is converting it into a general hospital. A campaign is being conducted to raise $32,000.

Personal.—Lieut.-Col. Harold C. Parsons, Toronto, who returned from overseas a short time ago, is now working with the committee inspecting Canadian military hospitals. ——The following Toronto physicians have been assigned to duty at Basingstoke Hospital, England: Drs. Oliver R. Maybee, Norman T. MacLaurin, Charles W. Clark, Hanna and Robinson.——Col. John W. S. McCullough, Toronto, chief medical officer of health, Ontario, was requested to take charge of the medical unit to Serbia, but the Ontario government considered his services of more worth to the province in his present capacity.——Capt. Leroy J. Snider, Toronto, who was in Mesopotamia for some time, has been reported wounded.

GENERAL

Malaria Meeting Postponed.—On account of the prevailing epidemic of influenza the meeting of the national malaria committee at Asheville, N. C., November 11, has been indefinitely postponed.

Public Health Officers' Reserve.—Legislation authorizing the establishment of an officers' reserve in the United States Public Health Service, was completed, October 21, by the adoption of the conference report to the Senate. The bill is now in the President's hands.

New Tri-State Officers.—At the forty-fifth annual meeting of the Northern Tri-State Medical Association held in Fremont, Ohio, October 8, the following officers were elected: Dr. George V. Brown, Detroit, president; Dr. Charles C. Terry, South Bend, Ind., vice president; Dr. George W. Spohn, Elkhart, Ind., secretary, and Dr. Joseph A. Weitz, Montpelier, Ohio, treasurer.

Influenza.—From most sections of the country by the end of the month the epidemic was reported to be on the wane. In some communities more or less distant from the large centers of population and off the main lines of travel the disease was only beginning to show itself, or had not yet reached its height. It was present, however, in every state in the Union, as confirmed by reports to the Public Health Service.

Association Meeting Postponed.—A letter from the president, chairman of the council and business manager of the Southern Medical Association, under date of October 15, announces postponement for a year, of the twelfth annual meeting of the Southern Medical Association, which was to have been held at Asheville, N. C., November 11 to 14, on account of the widespread epidemic of influenza. The papers which were to have been read will be published during the coming year in the *Southern Medical Journal.*

Anesthetists Hold Meeting.—At the annual meeting of the Inter-State Association of Anesthetists held in Indianapolis, September 26, the following officers were elected: chairman, Dr. Jacob J. Buettner, Syracuse, N. Y.; vice chairman, Dr. William J. Jones, Columbus, Ohio; secretary-treasurer, Dr. F. Hoeffer McMechan, Cincinnati, and directors, Drs. Isabella C. Herb, Chicago; B. H. Harms, Omaha; Henry F. Becker, Danville, Ill.; George B. Winter, St. Louis; Louis H. Maxson, Seattle, and W. F. Dramburg, Milwaukee.

Railway Surgeons Elect Officers.—At the annual meeting of the American Association of Railway Surgeons, held in Chicago, October 16 to 18, the following officers were elected: president, Dr. John P. Kaster, chief surgeon of the Santa Fe Railway, Topeka, Kan.; vice presidents, Drs. James M. Miller, Villa Grove, Ill.; Charles P. Frantz, Burlington, Iowa, and John P. Lord, Omaha; secretary, Dr. Louis J. Mitchell, Chicago (reelected); treasurer, Dr. Henry B. Jennings, Council Bluffs, Iowa, and executive committee, Dr. Clarence W. Hopkins and Guy G. Dowdall, both of Chicago.

Refilling of Narcotic Prescriptions Temporarily Permitted.—Owing to the epidemic of influenza the provisions of Article 11 of Regulations No. 35 prohibiting the refilling of narcotic prescriptions have been modified as follows: Prescriptions calling for morphin, codein or heroin, which are written by registered practitioners for patients suffering from Spanish influenza and any pulmonary or bronchial affections, may, until further notice, be refilled, provided that at the time of issuance by physicians instructions are noted in the body of such prescriptions, "Repeat if necessary," and the druggist filling and refilling the same shall note thereon each and every date on which such prescription is refilled.

New Officers of Southwestern Association.—The thirteenth annual meeting of the Medical Association of the Southwest was held in Dallas, October 14 to 17. Oklahoma City was selected as the next place of meeting and the following officers were elected: president, Dr. Matthew M. Smith, Dallas; vice presidents, Drs. Robert L. von Trebra, Chetopa, Kan.; Oscar B. Hall, Warrensburg, Mo.; Frank W. Jelks, Hot Springs, Ark.; Foster K. Camp, Oklahoma City, and secretary-treasurer, Dr. Fred H. Clark, El Reno, Okla. (reelected). It was decided hereafter to publish the journal of the association in Oklahoma City instead of El Reno, and Dr. Everett S. Lain, Oklahoma City, was selected as the editor-in-chief, pending the return of Dr. Fred H. Clark, who is now in the military service.

FOREIGN

School Inspection.—The minister of public instruction in Spain has obtained from the king a decree establishing medical inspection of schools in Madrid and Barcelona.

Scarcity of Camphor.—A notice in the *Correspondenz-Blatt* warns that the wholesale dealers in Switzerland have long been entirely out of camphor, and that it behooves all to save what supplies are on hand for indispensable uses, as in camphorated oil, and not waste it in liniments, etc. A similar warning has been sent out by the national public health service in Norway, specifying bismuth as well as camphor as requiring the extremest economy in use.

Deaths in the Profession Abroad.—Dr. **Paul Lucas-Championnière** of Paris, director of the *Journal de médecine et de chirurgie pratiques.*——Dr. **M. Holmboe,** for twenty-five years chief of the national public health service of Norway, aged 66. He has published much on scientific and administration topics, and was the leader in the movement which resulted in 1900 in the notification of tuberculosis. Also in the transformation of the civilian medical service, which culminated in the law of 1912.——The *Siglo Medico* mentions the death of Prof. **G. Gaffky** of Berlin, who succeeded Koch as director of the Institute for Infectious Diseases, aged 68.

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

For the Prevention of Blindness.—Following the meeting of the Fifth National Medical Congress in Mexico, a National Committee for the Prevention of Blindness has been founded, with Dr. J. Joaguin Izquerdo as secretary.

Influenza in Cuba.—The *Revista de Medicina y Cirugia* of Havana confirms the news item that the Spanish steamer *Alfonso XII* had 800 cases of pneumonic influenza on board, and there had been twenty-six deaths when it arrived at Havana. The epidemic has spread over the entire island, and there have been so many deaths, especially at Camagüey, that the people are much alarmed.

Reciprocity Between Peru and Uruguay.—The *Reforma Medica* of Lima gives the text of the diplomatic agreement between Uruguay and Peru for reciprocity in respect to academic credits in the liberal professions between the two republics. Not only the higher institutions of learning but the preparatory schools are thus enabled to receive students from the corresponding schools of the other country. The students are to matriculate and pay the same and have the same facilities for laboratory and similar work as the native students in each of the two states. The *Reforma* hails the new convention as "another link in the chain uniting the continent in intellectual Americanism." The reciprocity agreement is to remain in force for a year after either one of the contracting parties expresses a desire to withdraw. It is signed by the two plenipotentiaries appointed by the presidents of the two republics for the purpose, and is to be ratified by the respective governments.

CORRECTION

No Infantile Paralysis in Alfred, N. Y.—We are informed by Capt. D. C. Main, M. C., that the item which appeared under "Medical News" in THE JOURNAL of October 26, stating that seventy-seven mild cases of infantile paralysis had appeared in Alfred was incorrect. The newspaper item from which this note was taken probably referred to some mild cases of influenza. Alfred is the site of Alfred University, New York State School of Agriculture. This school has been chosen for a corps of the S. A. T. C., and has had a very low infection and death rate in the influenza epidemic. There has been no infantile paralysis in or near the village.

CUBA LETTER

HAVANA, Oct. 15, 1918.

The Epidemic of Influenza

The Department of Sanitation has been forced to take steps against the epidemic of influenza that has so rapidly spread throughout the republic. We have not, as yet, accurate statistics as to how many cases have occurred in the island, but many thousands have been reported. In Camagüey, where the epidemic seems to be most severe, 1,200 cases are known to exist at present and many have died of pneumonia; physicians and nurses have been sent from Havana to help the physicians of Camagüey and to establish prophylactic measures; all theaters have been closed, all public gatherings forbidden, and confinement of cases has been declared obligatory.

The Society of Clinical Studies

The Sociedad de Estudios Clinicos, September 30, elected new officers for the year 1918-1919. Dr. J. A. Presno was reelected chairman and Dr. L. R. Molina was reelected secretary.

The Medical Press Association

The Asociación de la Prensa Medica de Cuba elected new officers at the September meeting. Drs. J. F. Arteaga and J. B. Pons were elected president and secretary, respectively.

New Medical Journal

Dr. Matias Duque is the editor of the new monthly, *Medicina Cubana,* published in Havana and devoted to general practice.

Personal

Dr. R. P. Vento has been appointed professor of physiology at the University of Havana.

Dr. R. Menocal has been commissioned by the government to represent Cuba in the Congress of American Physicians and Surgeons.

BUENOS AIRES LETTER

BUENOS AIRES, Sept. 6, 1918.

Typhus in Northern Argentina

The commissions sent by the Public Health Service to northern districts have established the presence of typhus in several parts of the provinces of Salta and Jujuy, in the extreme north of the country, close to the border of Bolivia. It has been ascertained that the disease has been endemic there for some time, but in a milder form than at present. This endemic seems to be restricted to the poorest and most remote mountain regions of those provinces, small villages with scarcely any communication with the cities.

A number of villages were found affected by the endemo-epidemic; at Molinos, for example, with 200 inhabitants, 116 were found sick with typhus and 17 had died. It is believed that the low mortality, which averages from 10 to 20 per cent., is due to a relative immunization from previous attacks, but it is possible that the virulence is attenuated. Research is under way with guinea-pigs, and an antiserum is being prepared. It is almost certain that the disease will remain localized as the means of communication with more populous centers are so restricted. The governor of Jujuy has appealed for aid to the national government, which has promised to send a barracks hospital with personnel and equipment.

South American Conference on Hygiene, Microbiology and Pathology

In October the second conference of this kind is to convene at Rio de Janeiro. Drs. Miguel Couto and Carlos Chagas are to preside. The microbiologists and pathologists of the whole of South America have been invited to take part. The Argentine Departamento Nacional de Higiene is to send a delegation which will include Drs. Vidal, Cazes Itigoyen, Kraus, Carbonell, Roffo, Houssay and Sordelli. At the same time as this conference, is to be held the eight Brazilian Medical Congress to which several Argentine physicians have been invited, among others, Drs. A. Alfaro, Houssay and Mazza.

Sugar Treatment of Tuberculosis

The research in this line by the Italian, Professor Lo Monaco, has attracted much attention on account of the wide publicity given to it by the lay press. Many physicians have been giving a trial to this method of treating tuberculosis with hypertonic solutions of sugar. They have tried it also in whooping cough. The results have not been published as yet, but it may be announced in advance that, in whooping

cough, no success has been realized. In respect to tuberculosis, the best result achieved has been a reduction in the amount of expectoration, and this result has been frequently realized.

University Notes

Dr. J. L. Llambias, *profesor suplente* of pathologic anatomy, has been appointed regular professor of this branch of study in the medical department of the University of Buenos Aires. This appointment has aroused some discussion as he is the *intendente municipal* of the city, and although second in the *terna* was yet nominated by the chief executive, as the universities are state institutions.

The vacancies left by the death of Dr. Ayerza and the retirement of Dr. Molina, have to be filled by the chief executive.

The Facultad de Medicina has proposed for the chair of clinical medicine, Dr. M. Castex as the first choice, Dr. J. J. Viton as the second, and Dr. R. Bullrich as the third choice. For the chair of obstetrics, the choice is, first, Dr. A. Enriquez; second, Dr. P. Ramos, and third, Dr. Tronge.

The Academia de Medicina has opened the lists to fill a vacancy in the section of clinical medicine and one in the surgical section.

LONDON LETTER

London, Oct. 3, 1918.

Physicians in Parliament

It is recognized that our social fabric will be profoundly modified after the war, which will leave nothing the same as it was before. As has been explained in previous letters, the medical profession is looking forward to considerable changes, among which is the establishment of a ministry of health. The need of representation of the profession in Parliament is also felt. A crowded meeting has been held in London, with Sir Henry Morris, president of the Royal Society of Medicine, in the chair, to elect an executive committee to select suitable members of the profession willing to stand as candidates for Parliament. Sir Henry Morris pointed out the great attention now given to public health questions in Parliament and the anomaly that such matters as the endowment of pathologic research should be entirely in the hands of lawyers, shipowners, brewers and other politicians with no medical knowledge. Dr. Addison, minister of reconstruction, moved the resolution. It may be pointed out that he is the only member of the medical profession who ever attained the rank of cabinet minister. Before he entered politics he was not a practicing physician but a lecturer on anatomy. He moved that "in the interests of the national health it is essential that the considered views of the medical profession should be voiced by representative medical men in the House of Commons." He said that there was a wealth of opportunity for advice open to men of the right type and training in matters affecting the homes of the people. In these matters there would be a growing need for the assistance of men who had had the advantage of medical knowledge and practice. The war had revealed what great things could be done in the prevention of sickness and injuries. If medical science had not progressed since the days of the South African War we might by now have had a million or more cases of typhoid, instead of a mere handful. But far beyond those things we found, increasingly, that a similar guidance, gathering continually the results of experience and research, was needed with regard to the events of daily life. The prime minister had said the other day that we could not expect to run an A 1 empire on a C 3 population (referring to the extreme classes in the grading of recruits for the army). It would be true to add that we could not expect to get an A 1 population out of C 3 homes, habits, workplaces or conditions. As a first step it was necessary to bring together the assortment of different departmental responsibilities in health matters, and to secure that the thinking out and development of a systematic health policy, commensurate with urgent national needs, should be made the duty and responsibility of a definite body of men. We should and must be the victims of sporadic disjointed, and often conflicting effort until this was done. The Ministry of Health would not itself be a health service. It would be its duty to secure the development and administration throughout the country of adequate health service. It was an essential part of the project that there should be connected with the ministry certain consultative councils, of which one must be medical, whose duty it would be to advise on proposals, to make suggestions, and to afford the best advice that it could give or obtain. In the budget of 1914, Mr. Lloyd George had provided $5,000,000 toward improved health services, but the war interrupted the scheme they then had in their minds. Recent experiences would suggest improvements. Developments of adequate health services would need the good will and help of physicians as well as of those familiar with the problems of local government, insurance and other important services, and if the subject was approached in a proper spirit he was confident that they would be obtained. Those who were concerned with the business of government and administration, whether central or local, would have much to learn and would derive much help from such counsel. Physicians would also learn a good deal. The C 3 class and all that it implied meant that the nation's responsibilities could not end with water supply, drainage, the prevention of the spread of infectious diseases, the adulteration of food, and the like. With the advance of knowledge, science and experience, much could be done to safeguard the personal well-being of our people beyond what we had hitherto attempted, and in devoting its mind to this purpose he believed that the medical profession had a great duty and an unexampled opportunity before it.

The Medical Service of the Air Force

A special medical service is being organized for the air force. Two main divisions of the work will be recognized, namely, (*a*) care of the effective personnel, and (*b*) care of the noneffective personnel. The former may be considered to represent the hygiene and preventive side of the work and to include such special subjects as selection and care of the flying personnel, maintenance and improvement of the physical efficiency of all ranks, sanitation, etc. The latter represents the curative side of the work, and certain subdivisions that air force experience has shown to be necessary will be recognized, namely, neurology, surgery of the eye, throat, nose and ear, and plastic surgery, etc., in addition to general medicine, surgery and pathology. Subject to the exigencies of the service, a medical officer will be selected for and eventually allocated to work in the subdivision for which his ability best suits him. Since, however, the success of any special work in the air force will depend on a sound knowledge of the conditions of life of the effective personnel, medical officers will not be earmarked for one of the special subdivisions of the medical service until selected for the higher or Grade A pay. The system of charge pay as in vogue in the navy and army medical services has been replaced in the air force medical service by a system of special merit pay. An officer once selected for Grade A pay will draw such pay for a probationary period of one year, and if then confirmed, will, except in the case of incompetence or misconduct, continue to draw this pay, however employed, until promoted to the next higher rank, when he will be placed in Grade B until again selected for Grade A.

Marriages

Asst. Surg. Henry DeWitt Hubbard, Lieutenant (Junior Grade), U. S. Navy, San Jose, Calif., on duty at the U. S. Naval Hospital, Mare Island, Calif., to Miss Cecil Wright of Huntington Park, Calif., at Pleasanton, Calif., recently.

Lieut. Edward Buckman, M. C., U. S. Army, Chicago, on duty with the Eighty-Fifth Division, Camp Custer, Mich., and now overseas, to Miss Alfreda Hartenstein of Vicksburg, Miss., at Battle Creek, Mich., recently.

Asst. Surg. George Loughlin Tully, Lieutenant, U. S. N. R. F., Boston, on duty at U. S. Naval Station, Newport, R. I., to Miss Mary Kathleen McCarthy of Newton, Mass., October 12.

Lieut. Malcolm Kinmonth Smith, M. C., U. S. Army, New York City, on duty at Fort Oglethorpe, Ga., to Mrs. Alice Boutell Ladd of Washington, D. C., recently.

Lieut. Richard Roy Turnbull Furlong, M. C., U. S. Army, New York City, to Miss Beral M. Hadley of Nova Scotia, at New York City, October 17.

George G. Reinle to Miss Evelyn A. Kane, both of Oakland, Calif., at Camp Kearney, Calif., September 25.

William D. Snively, Rock Island, Ill., to Miss Emma G. Butler of Washington, D. C., September 12.

Willis Townsend Hinman to Miss Hazel Vance, both of Moline, Ill., September 24.

Edwin Cornne Hoff, Detroit, to Miss Helen Parlette of Carey, Ohio, October 19.

Deaths

Major Alfred Reginald Allen, Infantry, U. S. Army, Philadelphia; University of Pennsylvania, Philadelphia, 1898; aged 42; a Fellow of the American Medical Association; a member and from 1909 to 1917 secretary and treasurer of the American Urological Association; twice president of the American Psycho Pathological Association, and president of the Philadelphia Urological Society; and American Association of Pathology and Bacteriology; secretary of the American delegation to the Sixteenth International Congress to Budapest, Hungary, in 1909, and to the Seventeenth International Congress in London, in 1913; lecturer in urological electrotherapeutics; associate in neurology and in neuropathology in his alma mater; who when the United States declared war against Germany entered the line rather than the medical corps, went to the Infantry School of Arms at Fort Sill, Okla., and was commissioned as major, and assigned to duty with the Three Hundred and Fourteenth Infantry; was killed in action in France during the heavy fighting northwest of Verdun, September 30.

Edwin Bradford Cragin, New York City; College of Physicians and Surgeons in the City of New York, 1886; aged 58; a Fellow of the American Medical Association, American Gynecological Society and New York Academy of Medicine; professor of obstetrics and gynecology in his alma mater; attending obstetrician and gynecologist to the Sloan Hospital for Women; consulting gynecologist to the Presbyterian, Roosevelt and Lincoln hospitals, the New York Infirmary for Women and Children and St. Luke's Hospital, Newburgh, N. Y.; author of "Essentials of Gynecology," and "A Text-Book of Obstetrics," and one of the authors of the "American Text-Book of Gynecology"; an obstetrician and gynecologist of high rank; died at his home, October, 21, from pneumonia.

Leo Smith Petersen, New York City; College of Physicians and Surgeons of the City of New York, 1911; aged 31; a member of the Medical Society of the State of New York; attending anesthetist of the German Hospital, and attending surgeon to the German Dispensary; a member of the staff of the Lenox Hill, and Skin and Cancer hospitals; national president of the Chi Zeta Chi Medical Fraternity; at one time captain in command of the First Field Ambulance, N. Y. N. G., on the Mexican border; died in the Lenox Hill Hospital, New York City, October 22, from pneumonia.

Died in the Service
IN FRANCE
MAJOR ALFRED R. ALLEN, U. S. A.
1876-1918

Capt. Fred Scates Towle, M. C., U. S. Army; on duty at Colonia, N. J.; Portsmouth, N. H.; George Washington University, Washington, D. C., 1893; aged 54; a Fellow of the American Medical Association, and president of the New Hampshire Medical Society in 1917-1918; surgeon-general of New Hampshire from 1897 to 1899; city physician of Portsmouth, and chairman of the local board of health; assigned to duty with Base Hospital No. 3, Colonia, N. J.; lost his life in a fire which destroyed the officers quarters at that post, October 9.

Robert Coleman Kemp, New York City; College of Physicians and Surgeons in the City of New York, 1889; aged 53; a Fellow of the American Medical Association; professor of gastro-intestinal diseases in Fordham University, New York City; visiting gastro-enterologist to Fordham University Clinic, and consultant in gastro-intestinal diseases to the Manhattan State Hospital; died at his home, October 23, from pneumonia, following influenza.

Capt. Victor Moreau Rice, M. C., U. S. Army, Batavia, N. Y.; University of Buffalo, N. Y., 1904; aged 38; a Fellow of the American Medical Association, and a specialist on roentgenology; on duty with Company 21, M. O. T. C., Camp Greenleaf, Fort Oglethorpe; died in General Hospital No. 14, Fort Oglethorpe, October 13, from pneumonia, following influenza.

Ernest George Grey, Baltimore; Johns Hopkins University, Baltimore, 1911; aged 34; a Fellow of the American Medical Association; assistant resident surgeon at the Peter Bent Brigham Hospital, Boston, from 1912 to 1916, and at Johns Hopkins Hospital for two years thereafter; also instructor in surgery in Johns Hopkins University; recently appointed under the Rockefeller Foundation director of the surgical clinic of the Peking (China) Medical School and Hospital; died October 12, at Johns Hopkins Hospital, from pneumnoia, following influenza.

Lieut. Argo Montague Foster, M. C., U. S. Army, Kaukauna, Wis.; University of Michigan, Ann Arbor, 1910; aged 33; a Fellow of the American Medical Association; local surgeon of the Chicago and Northwestern System and city health officer of Kaukauna; died, September 2, in the North Shore Hospital, Chicago, from streptococcus infection following an operation on the nose.

Act. Asst. Surg. Francis Sherman Echols, U. S. P. H. S., Washington, D. C.; Bowdoin Medical School, Brunswick and Portland, Me., 1915; aged 36; a Fellow of the American Medical Association; who had served during the early part of the war in Middlesex Hospital, London, England; died in the Walter Reed Emergency Hospital in Washington, D. C., October 15, from pneumonia, following influenza.

Lieut. Admont Halsey Clark, M. C., U. S. Army; Johns Hopkins University, Baltimore, 1915; aged 30; assistant professor of pathology in Johns Hopkins University; resident pathologist to Johns Hopkins Hospital; who had done brilliant experimental work in pneumonia and diabetes; one of the most promising of the younger pathologists of America; died in Johns Hopkins Hospital, October 13, from pneumonia, following influenza.

Charles Huff Davis, Knoxville, Tenn.; Lincoln Memorial University, Knoxville, Tenn., 1898; aged 53; a Fellow of the American Medical Association, and American Laryngological Association; vice president of the Tennessee State Medical Association, and once president of the Knox County Medical Society; a specialist on diseases of the eye, ear, nose and throat; died at his home, October 21, from pneumonia, following influenza.

Isaac K. Urich, Annville, Pa.; Jefferson Medical College, 1882; aged 55; a Fellow of the American Medical Association; for two terms representative in the state legislature from Lebanon County; secretary-treasurer of the Calcite Quarry Company, Myerstown, Pa.; for twenty years school director of Annville; died at his home, October 14, from bronchial pneumonia.

Lieut. Earle Robinson Ackley, M. C., U. S. Army, Bartow, Fla.; Medical College of Ohio, Cincinnati, 1904; aged 44; a Fellow of the American Medical Association, and of the Cincinnati Academy of Medicine; on duty at Camp Greenleaf, Fort Oglethorpe, Ga.; died in the General Hospital, Fort Oglethorpe, October 13, from pneumonia, following influenza.

Lieut. Max Marowitz, M. C., U. S. Army, Youngstown, Ohio; Chicago College of Medicine and Surgery, 1916; aged 23; a Fellow of the American Medical Association; who arrived in France, June 15, and was transferred in August to the Seventeenth Regiment, British Army; died, September 1, from wounds received while giving first aid to his men.

Lieut. Duncan M. Stone, M. C., U. S. Army, San Antonio, Texas; University of Tennessee, Nashville, 1909; aged 36; a Fellow of the American Medical Association; on duty at the Medical Officers' Training Camp, Camp Greenleaf, Fort Oglethorpe, Ga.; died in General Hospital No. 14, Fort Oglethorpe, October 13, from pneumonia, following influenza.

Lieut. Porter Perry Pillans, M. C., U. S. Army, Orlando, Fla.; Chattanooga Medical College, 1908; aged 38; a Fellow of the American Medical Association; on duty at Camp Greenleaf, Fort Oglethorpe, Ga.; a member of Company 28, M. O. T. C.; died in General Hospital No. 14, Fort Oglethorpe, October 13, from pneumonia, following influenza.

George Canning Wankel, Deerfield, N. Y.; Cornell University, New York City, 1905; aged 35; a Fellow of the American Medical Association; for three years resident physician at the Sunset Rock Sanatorium, Bloomingdale, N. Y.; for several years health officer of Deerfield, and a member of the staff of St. Elizabeth's Hospital; while assisting the government in the fight against influenza in army camps in Massachusetts was seized with the disease; died in the New England Deaconess Hospital, Boston, October 15.

Albert Tyler Chambers, Baltimore; University of Maryland, Baltimore, 1898; aged 42; a Fellow of the American Medical Association; professor of clinical surgery in his alma mater; for nine years health warden of Baltimore, and for six years a member of the board of school commissioners; died at his home, August 14, from pneumonia, following influenza.

William Winthrop Wellington, Terryville, Conn.; University of Vermont, Burlington, 1889; aged 59; at one time a Fellow of the American Medical Association; a member of the Connecticut State Medical Society; for several years medical examiner (coroner) and town health officer; died at his home, October 7, from pneumonia, following influenza.

Lieut. Waldemar T. Richards, M. C., U. S. Army, New Orleans; Tulane University, New Orleans, 1902; aged 39; a Fellow of the American Medical Association; chief surgeon to the Presbyterian Hospital, New Orleans; at one time editor of the *Pan-American Medical Journal;* died at his home, October 14, from pneumonia, following influenza.

James Morrison Ray, Louisville, Ky.; University of Louisville, Ky., 1882; aged 57; a Fellow of the American Medical Association; professor of diseases of the eye, and clinical professor of diseases of the ear, nose and throat, in his alma mater; ophthalmic surgeon to the Louisville City Hospital; died at his home, October 11, from nephritis.

Lieut. Harry Paul Martin, M. C., U. S. Army, Chicago; on duty at Camp Custer, Battle Creek, Mich.; Rush Medical College, 1916; aged 38; a Fellow of the American Medical Association; on duty with the Fourteenth Sanitary Train, Two Hundred and Fifty-Sixth Field Hospital; died at Camp Custer, October 13, from pneumonia.

Albert Carl Rice, Babylon, L. I., N. Y.; University and Bellevue Hospital Medical College, 1909; aged 36; at one time a Fellow of the American Medical Association; a member of the Medical Society of the State of New York; visiting surgeon to the Southside Hospital, Babylon; died at his home, October 11, from pneumonia.

Edward Middleton Thompson, Brooklyn; University and Bellevue Hospital Medical College, 1899; aged 41; at one time a Fellow of the American Medical Association; assistant surgeon to the New York Orthopedic Hospital and Dispensary, and visiting surgeon to the Kings County Hospital; died at his home, October 16, from pneumonia.

Clarence Currier Day, Newburyport, Mass.; Dartmouth Medical School, Hanover, N. H., 1892; aged 52; a Fellow of the American Medical Association; a member of the medical staff of the Anna Jaques Hospital; for several years city physician of Newburyport; died at his home, October 17, from pneumonia, following influenza.

Abraham Korn, New York City; College of Physicians and Surgeons in the City of New York, 1885; aged 54; a member of the Medical Society of the State of New York; for fifteen years president of the Harlem Property Owners' Association, and an authority on taxation; died at his home, October 13, from pneumonia.

Charles Ryttenberg, Port Chester, N. Y.; College of Physicians and Surgeons in the City of New York, 1906; aged 36; a Fellow of the American Medical Association; and a member of the National Association for the Study and Prevention of Tuberculosis; died in a hospital in New York City, October 16, from influenza.

Samuel J. Ozment, Fort Smith, Ark.; University of Arkansas, Little Rock, 1889; Marion-Sims College of Medicine, St. Louis, 1901; aged 52; a member of the Arkansas Medical Society; for two terms physician of Sebastian County; died in Sparks Hospital, Fort Smith, October 16, from pneumonia, following influenza.

Edwin Eugene Hunter, Elizabethton, Tenn.; Kentucky School of Medicine, Louisville, 1885; aged 74; a member of the Tennessee State Medical Association; for twenty-five years a member of the State Medical Board; was struck by a train at Elizabethton, October 10, and died from his injuries a few hours later.

Lieut. Edmond I. Moquin, M. C., U. S. Army, Fair Water, Wis.; Marquette University, Milwaukee, 1913; aged 30; a Fellow of the American Medical Association; on duty at Camp Greenleaf, Fort Oglethorpe, Ga.; died in General Hospital No. 14, at that post, October 14, from pneumonia, following influenza.

Franklin Wilbur Wilcox, St. Petersburg, Fla.; College of Physicians and Surgeons, Baltimore, 1903; aged 44; a Fellow of the American Medical Association; local surgeon of the Atlantic Coast Line Railroad; died at the home of his brother in Jacksonville, October 17, from pneumonia, following influenza.

Jefferson Davis Chason, Bainbridge, Ga.; College of Physicians and Surgeons, Baltimore, 1888; aged 56; a Fellow of the American Medical Association; chief surgeon of the Georgia, Florida and Alabama Railway; founder of Riverside Hospital, Bainbridge; died in that institution, October 13.

Leonard Cassell McPhail, Brooklyn; New York University, 1876; aged 63; at one time a member of the Medical Society of the State of New York; physician to the Brooklyn Orphan Asylum for twenty-one years; attending physician to the Brooklyn Home for Consumptives; died at his home, October 16.

Lieut. Joseph Clarence Balson, M. C., U. S. Army, Passaic, N. J.; University and Bellevue Hospital Medical College, 1912; aged 29; a Fellow of the American Medical Association, and secretary of the Passaic Practitioners' Club; died at his home, October 11, from pneumonia, following influenza.

Lieut. George Rupp Pretz, M. C., U. S. Army, Lebanon, Pa.; Johns Hopkins University, Baltimore, 1909; aged 38; a Fellow of the American Medical Association; a specialist on diseases of the eye, ear, nose and throat; on duty at Syracuse, N. Y.; died in that city, September 30, from influenza.

Asst. Surg. Robert Harry Scott, Lieutenant (j. g.), U. S. Navy, Brooklyn; Long Island College Hospital, Brooklyn, 1910; aged 33; a Fellow of the American Medical Association; assigned to duty at the Naval Rifle Range, Peekskill, N. Y.; died at Peekskill, October 15, from pneumonia.

Charles Solomon Caverly, Rutland, Vt.; University of Vermont, Burlington, 1881; aged 62; a Fellow of the American Medical Association; professor of the state board of health; professor of hygiene and preventive medicine in his alma mater; died at his home, October 16, from influenza.

Edgar D. Heaton, Lancaster, Mo.; University of Illinois, Chicago, 1904; aged 42; at one time a Fellow of the American Medical Association; was found dead in his office, October 4, from the effects of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent.

Robert Carleton Hale, Providence, R. I.; Tufts College Medical School, Boston, 1901; aged 38; a Fellow of the American Medical Association; a member of the staff of the Homeopathic Hospital, Providence; died at his home, September 30, from pneumonia, following influenza.

Vernon Lyles Andrews, Mount Gilead, N. C.; University College of Medicine, Richmond, Virginia; aged 35; at one time a Fellow of the American Medical Association; a member of the Medical Society of the State of North Carolina; died at his home, October 13, from influenza.

General Jackson Stone, Spirit Lake, Iowa; Maryland Medical College, Baltimore, 1912; aged 32; a Fellow of the American Medical Association; local surgeon for the Rock Island and Milwaukee systems; died at his home, October 16, from pneumonia, following influenza.

Donald Robertson Jacob, Louisville, Ky.; University of Louisville, Ky., 1898; aged 44; a member of the Kentucky State Medical Association; traveling representative of a wholesale drug house in Texas and Arkansas; died at Texarkana, Ark., October 16, from pneumonia.

Joseph Alexander Trommald, Portland, Ore.; University of Oregon, Portland, 1916; aged 33; for several years a druggist; died at his home, October 12, from the effects of an incised wound of the throat, self-inflicted, it is believed, with suicidal intent, while despondent.

Frank Bacon Cook, Laurel Springs, N. J.; Baltimore Medical College, 1904; aged 42; at one time a Fellow of the American Medical Association; a member of the Medical Society of New Jersey; died at his home, October 9, from pneumonia, following influenza.

Henry Thomas Kurtz, Highland Falls, N. Y.; Cornell University, New York City, 1899; aged 56; a Fellow of the American Medical Association; for several years health

officer of Highland Falls; died at his home, October 15, from pneumonia, following influenza.

Lieut. Homer Coulson Parrish, M. C., U. S. Army, Fort Benton, Mont.; University of Illinois, Chicago, 1908; aged 46; on duty at Camp Greenleaf, Fort Oglethorpe, Ga.; died in General Hospital No. 14, at that post, October 14, from pneumonia, following influenza.

Lieut. Philip Frank Shaffner, M. C., U. S. Army, Chicago; Rush Medical College, 1909; aged 33; a Fellow of the American Medical Association, and a specialist on dermatology; on duty at Fort Riley, Kan.; died at that post, October 21, after an operation for appendicitis.

Lieut. Thomas Riggin Adams, M. C., U. S. Army, Califon, N. J.; Medico-Chirurgical College of Philadelphia, 1915; aged 26; a Fellow of the American Medical Association; on duty at Camp Lee, Va.; died in that place, October 4, from pneumonia, following influenza.

Lieut. Harry Charles McIntosh, M. C., U. S. Army, St. Paul; Chicago College of Medicine and Surgery, 1913; a member of the Minnesota State Medical Association; on duty at Camp Sherman, Chillicothe, Ohio; died at that post, October 6, from influenza.

Lieut. Henry Joseph Roewe, M. C., U. S. Army, Chicago; Northwestern University Medical School, Chicago, 1918; aged 26; a Fellow of the American Medical Association; an intern at Michael Reese Hospital; died in that institution, October 25, from influenza.

Robert Samuel Topping, Rutherford and Newark, N. J.; University and Bellevue Hospital Medical College, 1913; aged 35; a member of the Medical Society of New Jersey; died in the Presbyterian Hospital, Newark, October 11, from pneumonia, following influenza.

Arthur Heustis, Upton, Wyo.; Jenner Medical College, Chicago, 1906; aged 39; a Fellow of the American Medical Association; formerly a practitioner of Chicago; who went to Wyoming on account of tuberculosis; died at his home, October 21, from influenza.

Henry Kingsley Hine, Waterbury, Conn.; Maryland Medical College, Baltimore, 1908; aged 31; at one time a Fellow of the American Medical Association; a member of the Connecticut State Medical Society; died at his home, about October 7, from influenza.

Lieut. William Carlyle Kantner, Jr., M. C., U. S. Army, Seattle; Willamette University, Salem, Ore., 1907; aged 33; a Fellow of the American Medical Association; attached to Base Hospital Unit No. 50; died in France, September 15, from angina pectoris.

Lieut. Clarence Hull Dobbs, M. C., U. S. Army, Jacksonville, Fla.; Atlanta (Ga.) College of Physicians and Surgeons, 1910; a Fellow of the American Medical Association; on duty at Camp Zachary Taylor, Louisville, Ky.; died at that post, October 6.

Reuben Frank Davis, Lexington, Va.; University of Virginia, Charlottesville, 1910; aged 32; a Fellow of the American Medical Association; surgeon to the Virginia Military Institute; died at his home, October 5, from pneumonia, following influenza.

Walter William Lowell, Brooklyn; Cornell University, New York City, 1911; aged 28; a member of the Medical Society of the State of New York; assistant visiting physician to the Jamaica (Long Island) Hospital; died at his home, October 10, from pneumonia.

William Stewart Thompson, Standish, Me.; Dartmouth Medical School, Hanover, N. H., 1882; aged 64; a member of the Maine Medical Association; a member of the state legislature in 1887 and 1918; died at his home, October 2, from acute gastritis.

Clyde James Stormont, Viola, Wis.; Milwaukee Medical College, 1903; aged 37; at one time a Fellow of the American Medical Association; a member of the State Medical Society of Wisconsin; died at his home, October 6, from pneumonia, following influenza.

Died in the Service
IN FRANCE
MAJOR CLARENCE FAHNESTOCK, M. C.
U. S. ARMY, 1873-1918
(*See The Journal, last week, p. 1429*)

Walter Warren Kingsbury, Malden, Mass.; Tuft's College, Boston, 1905; aged 44; at one time a Fellow of the American Medical Association; a member of the Massachusetts Medical Society; died at his home, September 15, from pneumonia, following influenza.

Oscar J. Mugge, Cuero, Texas; Tulane University, New Orleans, 1901; aged 42; at one time a Fellow of the American Medical Association; a member of the State Medical Association of Texas; died at the Reuss Memorial Hospital, Cuero, October 12.

Robert A. Dodson, St. Michaels, Md.; University of Maryland, 1859; aged 82; at one time a member of the Medical and Chirurgical Faculty of Maryland; surgeon of the First Maryland Cavalry, U. S. V., during the Civil War; died at his home, recently.

Willis Oscar Davis, Jamaica, N. Y.; University of Louisville, Ky., 1895; aged 59; at one time a Fellow of the American Medical Association; clinical assistant in gastro-enterology at Fordham and Manhattan state hospitals; died at his home, October 4.

Stewart H. Shrock, LaGrange, Ind.; Indiana Medical School, Indianapolis, 1906; aged 36; a member of the Indiana Medical Association; died at the home of his father in La Grange, October 15, from pneumonia, following influenza.

Gardner Byron Young, Geneva, N. Y.; Bellevue Hospital Medical College, 1886; aged 58; a Fellow of the American Medical Association; a specialist in anesthesia; for eight years a member of the Geneva Board of Health; died at his home, October 1.

Lieut. James David Atkins, M. C., U. S. Army, Crichton, Ala.; University of Alabama, Mobile, 1906; aged 38, a Fellow of the American Medical Association; on duty at Camp Lee, Petersburg, Va.; died in that place, October 2, from pneumonia.

Lieut. William Karp, M. C., U. S. Army, Portsmouth, Va.; on duty at Camp Meade, Admiral, Md.; Medical College of Virginia, Richmond, 1915; aged 31; a Fellow of the American Medical Association; died in Camp Meade, October 9, from influenza.

Raymond Lockwood Leonard, Chicago; Rush Medical College, 1872; aged 68; a Fellow of the American Medical Association; died in the Post-Graduate Hospital, Chicago, October 19, from carcinoma of the bladder, following an exploratory cystotomy.

Wilfred Harry Daniels, Lancaster, Pa.; Jefferson Medical College, 1914; aged 32; a member of the Medical Society of the State of Pennsylvania; president of the Lancaster City and County Medical Society; died at his home, October 14, from influenza.

Edward Pilon, Vergennes, Vt.; University of Vermont, Burlington; aged 54; a member of the Vermont Medical Society; for twenty-seven years organist and director of the choir of St. Peter's Church; died at his home, October 14, from nephritis.

Edward Miller Ware, Beatrice, Neb.; University of Nebraska, Omaha, 1907; aged 43; at one time a Fellow of the American Medical Association; a member of the Nebraska State Medical Association; died at his home, October 14, from influenza.

Furman P. Covington, Florence, S. C.; New York University, New York City, 1885; aged 57; at one time a member of the South Carolina Medical Association; a member of the board of commissioners of Florence; died at his home, October 5.

Lieut. David Meyer Rothenberg, U. S. N. R. F., Brooklyn; College of Physicians and Surgeons in the City of New York, 1917; aged 24; a Fellow of the American Medical Association; died in the Jewish Hospital, Brooklyn, October 5, from pneumonia.

Samuel Gavronsky, Harrisburg, Pa.; University of Maryland, Baltimore, 1918; resident physician at the Harrisburg Hospital; died in that institution, October 4, from influenza.

Edgar W. Lassiter, Rich Square, N. C.; University College of Medicine, Richmond, Va., 1908; aged 37; a member of the Medical Society of the State of North Carolina; died at his home, October 12, from pneumonia, following influenza.

Henry Ferdinand Steinle, Burlington, Iowa; Gross Medical College, Denver, 1890; aged 51; a Fellow of the American Medical Association; city physician and health officer of Burlington; died at his home, October 15, from heart disease.

Benjamin James Willingham, Wilmington, N. C.; Medical College of Virginia, Richmond, 1906; aged 37; a member of the Medical Society of the State of North Carolina; died at his home, October 5, from pneumonia, following influenza.

Edwin Everett Bond, Stronghurst, Ill.; Northwestern University Medical School, Chicago, 1909; aged 32; a Fellow of the American Medical Association; died, October 5, in the Galesburg Hospital from pneumonia, following influenza.

Preston R. Merrill, Fremonton, Utah; Northwestern University Medical School, Chicago, 1906; aged 36; at one time a Fellow of the American Medical Association; died at his home, October 11, from pneumonia, following influenza.

William Donald Braislin, Brooklyn; College of Physicians and Surgeons in the City of New York, 1917; aged 25; resident physician at the Trudeau Sanatorium, Saranac Lake, N. Y.; died at that place, October 5, from pneumonia.

Adolph Morgenstern, New York City; Long Island College Hospital, Brooklyn, 1906; a member of the Medical Society of the State of New York; alternate on the staff of the New York Lying-In Hospital; died at his home, October 7.

Lieut. William C. Buffalow, M. C., U. S. Army, Jacksonville, Fla.; Lincoln Memorial University, Knoxville, Tenn., 1910; aged 33; a Fellow of the American Medical Association; died at his home, October 8, from pneumonia.

Harold Milne French, Freeport, L. I., N. Y.; New York Homeopathic Medical College, New York City, 1913; aged 34; a member of the Medical Society of the State of New York; died at his home, October 18, from pneumonia.

Cora Geneva Yates, Pawtucket, R. I.; College of Physicians and Surgeons, Boston, 1891; aged 66; a Fellow of the American Medical Association, and a specialist in pediatrics; died in her apartment in Pawtucket, September 23.

Green L. Pryor, Frankfort, Ky.; Kentucky School of Medicine, Louisville, 1868; aged 79; for forty-five years a practitioner of Monterey, Ky.; died at the home of his daughter near Frankfort, September 3, from senile debility.

John Forsyth Little, Lawrenceville, N. J.; Jefferson Medical College, 1904; aged 38; while taking care of patients at the Lawrenceville Preparatory School, contracted influenza, and died at his home, October 12, from pneumonia.

N. Van Speece, Quincy, Ohio; Starling Medical College, Columbus, Ohio, 1863; aged 79; at one time a member of the Ohio State Medical Association; a veteran of the Civil War; died at his home, October 15, from senile debility.

Thomas Miller, Jr., Washington, D. C.; George Washington University, Washington, D. C., 1913; aged 30; a Fellow of the American Medical Association; died at his home, October 6, from pneumonia, following influenza.

Herman Gross, Metuchen, N. J.; College of Physicians and Surgeons in the City of New York, 1902; aged 39; a Fellow of the American Medical Association; head of the board of health of Metuchen; died at his home, October 6.

William H. H. Smith, Council Grove, Kan.; Northwestern Medical College, St. Joseph, Mo., 1892; aged 60; at one time a Fellow of the American Medical Association; died at his home, September 28, from cerebral hemorrhage.

John Richard Perkins, New York City; College of Physicians and Surgeons in the City of New York, 1918; aged 26; an intern in the Presbyterian Hospital, New York City; died in that institution, October 9, from pneumonia.

Thomas Nash Broaddus, Richmond, Va.; Medical College of Virginia, Richmond, 1911; aged 31; a Fellow of the American Medical Association; died at his home, October 5, from bronchopneumonia, following influenza.

Asst. Surg. Harry Ellsworth Davey, Lieut. (j. g.) U. S. N. R. F., Keene, N. H.; Boston University, 1913; aged 34; a Fellow of the American Medical Association; died at his home in Keene, October 15, from influenza.

Wolf Samuel Schrayer, Chicago; University of Warsaw, Russia, 1895; Harvey Medical College, Chicago, 1900; aged 49; a Fellow of the American Medical Association; died at his home, October 14, from pneumonia.

Mathis Daniel Linehan, Dubuque, Iowa; St. Louis College of Physicians and Surgeons, 1906; aged 35; a member of the Iowa State Medical Society; died at his home, October 15, from pneumonia, following influenza.

Clifton Norwood De Vilbiss, Laytonsville, Md.; University of Maryland, Baltimore, 1910; aged 33; a member of the Medical and Chirurgical Faculty of Maryland; died at his home, October 15, from pneumonia.

Walter S. Lincoln, Dodgeville, Wis.; University of Illinois, Chicago, 1897; aged 54; a Fellow of the American Medical Association; health officer of Dodgeville; died at his home, about October 14, from pneumonia.

Harry Mayer Schall, Rochester, N. Y.; Jefferson Medical College, 1887; aged 55; a member of the Medical Society of the State of New York; died in the Rochester General Hospital, October 9, from heart disease.

Laura Bell Stoner, Battle Creek, Mich.; American Medical Missionary College, Chicago, 1904; aged 39; a member of the staff of the Battle Creek Sanitarium; died in Atlanta, Ga., October 23, from pneumonia.

John Aimone, Granville, Ill.; University of Illinois, Chicago, 1907; aged 37; a Fellow of the American Medical Association; died at his home, October 4, from bronchial pneumonia, following influenza.

John Frank Marshall, Ashland, Pa.; University of Pennsylvania, Philadelphia, 1907; aged 36; a Fellow of the American Medical Association; died at his home, October 9, from pneumonia, following influenza.

Albert Harry Herr, Okmulgee, Okla.; Chicago College of Medicine and Surgery, 1912; aged 30; a Fellow of the American Medical Association; died at his home, October 8, from pneumonia, following influenza.

Harvey F. Eichman, Chicago; Chicago College of Medicine and Surgery, 1910; aged 40; a Fellow of the American Medical Association; died at his home, October 14, from pneumonia, following influenza.

William H. Wells, Stronghurst, Ill.; University of Illinois, Chicago, 1897; aged 57; a Fellow of the American Medical Association; died in the Galesburg Hospital, October 5, from pneumonia, following influenza.

Nellie S. Hayes, Los Angeles; University of Southern California, Los Angeles, 1904; aged 42; a Fellow of the American Medical Association; died at her home, October 11, from pneumonia, following influenza.

Sigurd Peter Dahl, Decorah, Iowa; Drake University, Des Moines, Iowa, 1913; aged 33; a Fellow of the American Medical Association; died at his home, October 9, from pneumonia, following influenza.

Henry W. Dew, Lynchburg, Va.; College of Physicians and Surgeons, Baltimore, 1886; aged 56; a Fellow of the American Medical Association; died at his home, October 17, from pneumonia, following influenza.

Isadore Jacques Grossman, Brooklyn; University and Bellevue Hospital Medical College, 1915; aged 26; house physician of the Jewish Hospital, Brooklyn; died at his home, October 13, from pneumonia.

James Elmer Chapman, Bloomingburg, Ohio; Starling Medical College, Columbus, Ohio, 1903; aged 46; a member of the Ohio State Medical Association; died at his home, October 5, from influenza.

Carl Neal Etchison, Gaithersburg, Md.; Maryland Medical College, Baltimore, 1908; aged 32; a member of the Medical and Chirurgical Faculty of Maryland; died at his home, October 17, from influenza.

William Garner White, York, S. C.; University of Maryland, Baltimore, 1883; aged 60; at one time a member of the South Carolina Medical Association; died at his home, October 12, from pneumonia.

Joseph Johnston Stevens, Hattiesburg, Miss.; Tulane University, New Orleans, 1890; aged 51; at one time a Fellow of the American Medical Association; died at his home, October 15, from heart disease.

Ernest William Auzal, New York City; University of Vermont, Burlington, 1884; aged 58; a Fellow of the American Medical Association; a specialist in neuropathology; died at his home, October 11.

Henry M. Fagaines, Chandler, Okla.; University of Wooster, Cleveland, 1880; aged 61; formerly a member of the Oklahoma State Medical Association; died at his home, October 12, from pneumonia.

Elizabeth Aileen Lynch Schuler, Winona, Minn.; Milwaukee Medical College, 1910; aged 34; a member of the Minnesota State Medical Association; died at her home, October 18, from influenza.

J. P. Phillips, Florala, Ala.; Memphis Hospital Medical College, 1898; at one time a member of the Medical Association of the State of Alabama; died at his home, October 11, from influenza.

John G. Hoeckh, Buffalo; University of Buffalo, 1907; aged 33; clinical pathologist to the Ernest Wende Hospital, and assistant physician of Erie County; died at his home, October 5, from pneumonia.

Munroe Dart Youngman, Ardmore, Pa.; Hahnemann Medical College, Philadelphia, 1911; aged 32; a Fellow of the American Medical Association; died at his home, October 11, from pneumonia.

Lou N. Byers, Aurora, Ill.; Chicago College of Medicine and Surgery, 1911; aged 33; a Fellow of the American Medical Association; died at her home in Aurora, October 3, from pneumonia.

Lieut. Clark Denike Fanton, M. C., U. S. Army, Riverside, Calif.; State University of Iowa, Iowa City, 1915; aged 30; is reported to have died, recently, at a military camp in California.

David Robert Hancock, Redondo Beach, Calif.; Starling Medical College, Columbus, Ohio, 1892; aged 48; city health officer since 1894; died in Redondo Beach, October 14, from pneumonia.

Robert M. C. Gavin, Tonganoxie, Kan.; Philadelphia University of Medicine and Surgery, 1878; aged 81; for many years a practitioner of Lebo, Kan.; died at his home, October 5.

Edward J. Murray, Scranton, Pa.; Baltimore Medical College, 1910; aged 33; at one time a Fellow of the American Medical Association; died at his home in Throop, Pa., about October 9.

Fred McVey Towles, Fort Wayne, Ind.; Medical College of Indiana, Indianapolis, 1902; aged 45; assistant surgeon of the Pennsylvania System, at Fort Wayne; died at his home, October 8.

Leo Gernand Maury, Chicago; Northwestern University Medical School, Chicago, 1918; aged 23; an intern in Michael Reese Hospital; died in that institution, October 19, from influenza.

John Henry Bender, Wetzel, Ohio; Ohio State University, Columbus, 1912; aged 31; a member of the Ohio State Medical Association; died at his home, about October 9, from influenza.

William Francis Brown, Roxbury, Boston and Nahant, Mass. (license, Massachusetts, years of practice); aged 61; died at his summer home in Nahant, October 2, from heart disease.

Warren B. Rush, Lake City, Fla.; Jefferson Medical College, 1893; aged 70; a Fellow of the American Medical Association; died at his home, September 11, from cerebral hemorrhage.

Jacob Chasan, New York City; Long Island College Hospital, Brooklyn, 1911; aged 34; assistant physician to the Bronx Hospital; died at his home, October 9, from pneumonia.

Jesse D. Hodges, Little Rock, Ark.; Chicago College of Medicine and Surgery, 1914; aged 35; president of the Arkansas Pharmaceutical Association; died at his home, October 15.

Herbert Sumner Reynolds, Clinton, Conn.; New York University, New York City, 1881; aged 58; died in Grace Hospital, New Haven, Conn., October 9, after a surgical operation.

Ancil Gatliff, Williamsburg, Ky.; Hospital College of Medicine, Louisville, Ky., 1876; aged 70; one of the largest coal operators of eastern Kentucky; died at his home, October 14.

Frank Horan Collins, New York City; University of Pennsylvania, Philadelphia, 1906; assistant surgeon to the Throat, Nose and Lung Hospital; died at his home, about October 14.

Charles H. Hunter, Minneapolis, College of Physicians and Surgeons in the City of New York, 1878; aged 65; died at the Eitel Hospital, Minneapolis, October 15, from nephritis.

Abraham James Gordon, Philadelphia; Jefferson Medical College, 1912; aged 29; intern in the Jewish Hospital, Philadelphia; died in that institution, October 6, from influenza.

Lieut. Carl Stoepler, M. C., U. S. Army, Philadelphia; Medico-Chirurgical College of Philadelphia, 1912; aged 36; died in the Polyclinic Hospital of Philadelphia, October 9.

Capt. William Fielding McIsaac, C. A. M. C., Antigonish, Nova Scotia; on duty with No. 9 Stationary Hospital in France, is reported to have died from wounds, recently.

William Harris Corson, Jr., Collegeville, Pa.; Hahnemann Medical College, Philadelphia, 1909; aged 34; died at his home, October 9, from pneumonia, following influenza.

James F. Folz, Philadelphia; Medico-Chirurgical College, Philadelphia, 1897; aged 45; district city physician; died at the Northeast Hospital, October 10, from pneumonia.

Bernard William Junge, New York City; University of Buffalo, N. Y., 1900; aged 49; a Fellow of the American Medical Association; died at his home, October 12.

Walter Arthur Watts, Pawtucket, R. I.; University of Vermont, Burlington, 1910; aged 38; city physician of Pawtucket; died at his home, October 7, from influenza.

George Lewis Smith, Philadelphia; University of Pennsylvania, Philadelphia, 1897; aged 47; died at his home, October 10, from pneumonia, following influenza.

John Francis Munns, Bremerton, Wash.; University of Minnesota, Minneapolis, 1903; aged 46; died at his home, October 13, from pneumonia, following influenza.

Benjamin J. See, Harris, Ill. (license, years of practice, Illinois, 1878); aged 94; a practitioner for sixty-five years; died at the home of his son in Paris, October 11.

Chauncey Benjamin Lambert, Riverside, N. J.; Hahnemann Medical College, Philadelphia, 1904; died at his home, October 8, from pneumonia, following influenza.

Edward Stack Grace, New Britain, Conn.; University of Vermont, Burlington, 1914; aged 29; died at his home, October 8, from pneumonia, following influenza.

Frank Timothy Mara, Boston; Harvard Medical School, 1887; aged 52; died in St. Elizabeth's Hospital, October 3, from pneumonia, following influenza.

Charles Emera James, Laurel, Del.; Jefferson Medical College, 1911; aged 33; formerly of Charptown, Md.; died at his home, October 13, from influenza.

Capt. J. T. Whitworth Boyd, C. A. M. C., Port Arthur, Ont.; Queens University, Kingston, Ont., 1914; is reported to have died from wounds, recently.

Francis M. Yost, Center Point, Iowa (license, Iowa, years of practice, 1887); aged 87; a practitioner of medicine since 1853; died at his home, October 12.

Grant Mitchell, Pittsburgh; University of Illinois, Chicago, 1896; aged 54; a practitioner of dentistry for thirty-two years; died at his home, October 1.

Work A. Streeter, Harrisburg, Pa.; Hahnemann Medical College, Philadelphia, 1916; aged 28; died in Harrisburg, October 14, from pneumonia.

Edward Joseph Therrien, Marlboro, Mass.; Ecole de Médecine et de Chirurgie, Montreal, 1886; aged 62; died at his home, about October 13.

Capt. M. A. McKechnie, C. A. M. C., Walkerton, Ont.; Queens University, Kingston, Ont., 1917; is reported to have died of wounds, recently.

George Whitefield Holmes, Atlanta, Ga.; Atlanta Medical College, 1898; aged 64; died at a private sanitarium, in Atlanta, October 14.

Samuel C. Blair, Philadelphia, University of Pennsylvania, Philadelphia, 1878; aged 64; died at his home, October 9, from heart disease.

Abram B. Patton, Waynesburg, Pa.; Jefferson Medical College, 1877; aged 67; died at his home, October 9, from cerebral hemorrhage.

Robert J. Cunniff, Philadelphia; Maryland Medical College, Baltimore, 1909; aged 37; died at his home, October 7, from pneumonia.

Earl Clifton West, Laurel, Del.; Maryland Medical College, Baltimore, 1912; aged 33; died at his home, October 13, from influenza.

James Mackay Montgomery, Philadelphia; Jefferson Medical College, 1897; aged 55; died at his home, October 7, from influenza.

Robert A. Baldridge, Farmersburg, Ind.; Eclectic Medical Institute, Cincinnati, 1884; aged 82; died at his home, October 3.

Albion Horace Allen, New London, Conn.; Boston University, 1875; aged 81; died at his home, about September 17.

Stephen John Songy, Wallace, La.; Tulane University, New Orleans, 1913; aged 29; died at his home, recently.

Correspondence

THE TREATMENT OF "SPANISH INFLUENZA"

To the Editor:—In a number of cases of influenza and influenzal pneumonia, seen both in my private practice and at the Alexian Brothers' Hospital, I have used a treatment from which my results have been most satisfactory.

The clinical course of the condition may be divided for convenience into three stages. The first lasts from three to four days, and is characterized by chills, fever, muscular pain, etc. The second is of rather uncertain duration, and is characterized by involvement of the respiratory system varying in degree from a slight catarrhal condition to the involvement of a large area of one or both lungs. The third is characterized by disturbances of the circulatory system, dyspnea and cyanosis.

In the treatment, the patient receives as soon as possible from 10 to 20 c.c. of a saturated solution of quinin hydrochlorid. This is given intravenously and is repeated once or twice in twenty-four hours. It is followed for from two to five days by one or two daily injections of the same solution, the quantity depending on the condition of the patient. In addition, the patient receives 4 grains of quinin bisulphate and 6 grains of sodium salicylate over three hours. This may be given either in capsules or solution, but it is important that the two drugs be given together. I make it a rule to continue the intravenous injection until the temperature remains normal or subnormal for at least thirty-six hours; I continue the quinin and the sodium salicylate until the temperature has continued normal or subnormal for three consecutive days. With this treatment, all patients that came under my observation within three days of the onset of symptoms made a rapid and uninterrupted recovery within from one to three days. In no case did they continue into the second stage, or show any complication. Patients that came under my observation in whom the symptoms lasted more than three days, and those of the second stage with respiratory symptoms, all made rapid and uninterrupted recovery in from one to eight days. We also had a very slight mortality in cases of the third stage.

Under this treatment a marked improvement may be noticed in the leukocyte count. In cases in which the leukocyte count was 2,000 before the injection there was a decided rise to 4,000 or 5,000 immediately following the first injection, and after repeated injections even as high as 21,000.

I cannot too strongly call attention to the importance of keeping the bowels open by mild cathartics. Often a lingering temperature disappeared after a brisk flushing of the bowels, and this method greatly aided in shortening the course of the disease.

Some may regard the dosage of quinin given as heroic, but I find that it represents rather the minimum than the maximum amount with which results may be obtained.

H. A. Klein, M.D., Chicago.

DEPENDABILITY OF DOSAGE IN TABLETS

To the Editor:—In your article—"Dependability of Dosage in Tablets" (The Journal A. M. A., July 27, 1918), we feel that an unintentional injustice has been done us. In citing the work done by the Connecticut Agricultural Experiment Station, and stating that "Allowing a tolerance in composition of 10 per cent., one or more products of the following manufacturers were found deficient," our name has been included in this list. In your brief abstract of the matter it was not possible to state that of the twelve samples of tablets of our manufacture (The G. F. Harvey Company and the Harvey Company are one and the same) examined in 1916 and 1917, that while one sample was found deficient in strength, this sample was of such a nature that it could not by eminent authorities be expected to test up to labeled strength.

The sample here referred to is Digestive Aromatic Tablets. Leading authorities on combinations of Pepsin and Pancreatin, including the very chemists who made the examinations in question, including also the authorities quoted in your article in the A. M. A., Aug. 20, 1910, on Aromatic Digestive Tablets, concede that there is an interaction when in combination, in tablets made by the generally approved methods.

The general method in making compressed tablets is that after mixing carefully the several ingredients, the mixture is moistened sufficiently to permit of a granulation being made and such granulation is then dried carefully with regulated artificial heat. While it would be possible in this particular tablet to make separate granulations of the incompatible substances and mix such granulations only after each is thoroughly dry, yet the tablets would not be more valuable because the destructive process would ensue after the tablets came in contact with the secretions of the alimentary tract.

In view of these facts, we think we should be exonerated from any adverse criticism on this twelfth sample of ours examined and we thank you most heartily for your spirit of fairness in now calling this matter to the attention of the readers of The Journal.

The Harvey Co., Saratoga Springs, N. Y.

[Comment.—The Harvey Company seems to hold the opinion that it does not matter whether or not Aromatic Digestive Tablets contain the amount of ferments claimed on the label, since, in any case, these ferments would mutually destroy each other, as soon as such tablets came in contact with the digestive secretions. No excuse can be, or is, offered for those physicians who prescribe such absurdities as Aromatic Digestive Tablets (The Journal, Aug. 20, 1910, p. 710), but neither is there any justification for a firm selling a product which it knows will not measure up to the claims made for it. In this connection, it is worth repeating what The Journal said on this subject as long ago as Dec. 19, 1914:

"Manufacturers are warned by the Department of Agriculture through the Bureau of Chemistry, that combinations claiming to contain digestive enzymes must be active when sold. If preparations tend to deteriorate in a short time, each lot should be dated and not sold after the period when they become inactive. While every manufacturer must be considered innocent until proved guilty and ignorant until proved knowing, it is a matter of knowledge that many manufacturers have marketed their various digestive mixtures with full appreciation of their worthlessness.—Ed.]

POINT OF VIEW OF JOHN AMES MITCHELL, PUBLISHER OF LIFE

To the Editor:—I have been greatly interested in a biographic sketch of John Ames Mitchell, proprietor of *Life*, published in the *Harvard Graduates' Magazine*, September, 1918. The biography was written by E. S. Martin of the class of '77 of Harvard University. We all have enjoyed Mr. Mitchell's attacks on the medical profession, which rarely failed to be found in every number of *Life*. The part of the biography which interests the readers of The Journal is as follows:

He was by no means completely educated. But no one ever is. He was cultivated, his taste was trained, and whether it dealt with art, letters or deportment, it was good taste. But imperfect knowledge of facts, or unwillingness or inability to weigh them, often led him to queer conclusions which he stuck to with the utmost tenacity. About medicine, for example, he was not only a heretic, but a fighting opponent of pretty much the whole scheme of modern medicine. Not only he hated and fought vivisection, against which there is plenty to be said, but all the use of serums was abhorrent to him. He would deny that vaccination had abated smallpox, and say that sanitation had done it. If he could, he would have forbidden inoculation for typhoid.

Modern medicine is not perfect, and assaults on it are not without value. When bleeding was the accepted practice, Molière was scandalous when he ridiculed it. It is quite conceivable that modern medical practice will give way as knowledge advances to something better, but while it lasts it is held to be almost treasonable to doubt it, and whoever attacks it has need of courage.

Mitchell had the courage. He always had the courage to attack anything he thought was wrong, and whether or not it grieved the readers of *Life* or advertisers it never gave him much concern.

All that is good in medicine has never suffered from the wit and sarcasm which Mitchell was constantly hurling at the profession. His biographer has clearly indicated that there was no malice in these missiles. We are all aware of the shortcomings of medicine. The profession will never suffer from attacks, even to a certain extent baseless, which

are made either in a spirit of amusement or from a genuine desire to criticize. I, for one, shall miss Mitchell's arrows, and *Life* will be less interesting by reason of his death. I once had in mind to write to Mr. Mitchell that inasmuch as he was continually attacking the medical profession, whose purpose it is to save life, he ought to change the title of his paper to *Death*. He perhaps would not have acted favorably on my suggestion.

H. W. WILEY, M.D., Washington, D. C.

"THE PROPAGANDA OF THE V. M. S. C."

To the Editor:—An editorial comment in THE JOURNAL (Oct. 5, 1918, p. 1141) contains a reference to a proposed resolution in the *Bulletin* of the Buchanan County Medical Society bearing on the membership therein as related to the Volunteer Medical Service Corps. The *Bulletin* was in error in stating that the resolution was introduced at the request of the Council of National Defense, Medical Section. It was introduced at the request of the Missouri State Committee of the Council of National Defense, Medical Section.

DANIEL MORTON, M.D., St. Joseph, Mo.
President, Buchanan County Medical Society.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DELAY IN RECEIPT OF ORDERS

To the Editor:—Please advise me as to the correctness of the information in THE JOURNAL, October 12, concerning Dr. M. W. R. of Missouri. The item stated that Lieut. M. W. R., Missouri, had orders, or was to proceed to Fort Riley, Kan., for a course of instruction. Did I read it right? So far I have not received any orders to report, and am anxious to get them. M. W. R., M.D., Missouri.

ANSWER.—This question is continually coming in. The orders as published in THE JOURNAL are taken from the carbon copies of the orders sent by the Surgeon-General's Office to the Adjutant-General's Office. Frequently considerable delay occurs in the Adjutant-General's Office. If the order appears in THE JOURNAL but is not received by the officer within a reasonable time, he should write to the Surgeon-General's Office, stating the facts.

DIPHTHERIA ANTITOXIN TREATMENT OF INFLUENZA

To the Editor:—Please advise me as to the value of diphtheria antitoxin in the treatment of the present epidemic of influenza.

ALWARD H. WHITE, M.D., Shafter, Texas.

ANSWER.—There is no scientific reason to believe that diphtheria antitoxin can have any more value in influenza than an equal quantity of horse serum.

BEST WAY TO KEEP STATIC MACHINES DRY

To the Editor:—In THE JOURNAL, Aug. 31, 1918, M. H. F. makes inquiry as to the best and cheapest method of keeping the air within a static machine dry. If the doctor will keep a dish containing about 1 pound of sulphuric acid (92.5 per cent.) in one end of the machine, he will find that moisture will give him no trouble. The acid must be changed about once in three or four months, as it absorbs so much water in that length of time that it becomes ineffective.

M. G. SLOAN, M.D., Des Moines, Iowa.

Epinephrin in Treatment of Eczema.—The *Riforma Medica* quotes the *Annali di Medicina Navale* of July 22, 1918, to the effect that P. Trapani found that many forms of eczema subsided under subcutaneous injection of epinephrin. He injected it in the buttocks or in the vicinity of the focus, commencing with ⅛ mg. in physiologic solution and increasing to ¼ mg. He never had to make more than fifteen or twenty injections at most, giving them daily or on alternate days. Even chronic eczema of long standing subsided the same as the acute and partial.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Little Rock, Nov. 12-13. Sec., Regular Bd., Dr. T. J. Stout, Brinkley, Ark.; Sec., Eclectic Bd., Dr. C. E. Laws, 803½ Garrison Ave., Ft. Smith.

CONNECTICUT: New Haven, Nov. 12-13. Sec., Regular Bd., Dr. C. A. Tuttle, 196 York St., New Haven; Sec., Eclectic Bd., Dr. James E. Hair, 730 State St., Bridgeport; Sec., Homeopathic Bd., Dr. E. C. M. Hall, 82 Grand Ave., New Haven.

DELAWARE: Wilmington, Dec. 10-12. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

IOWA: Des Moines, Dec. 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

LOUISIANA: New Orleans, Dec. 2-4. Sec., Dr. E. W. Mahler, 730 Audubon Bldg., New Orleans.

MAINE: Portland, Nov. 12-13. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MARYLAND: Baltimore, Dec. 10. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.

MASSACHUSETTS: Boston, Nov. 12-14. Sec., Dr. Walter P. Bowers, No. 1 Beacon St., Boston.

NEBRASKA: Lincoln, Nov. 13. Sec., H. J. Lehnhoff, 514 First Natl. Bk. Bldg., Lincoln.

NEVADA: Carson City, Nov. 4. Sec., Dr. S. L. Lee, Carson City.

OHIO: Columbus, Dec. 3-5. Sec., Dr. H. M. Platter, State House, Columbus.

TEXAS: Dallas, Nov. 19-21. Sec., Dr. M. F. Bettencourt, Mart.

VIRGINIA: Richmond, Dec. 10-13. Sec., Dr. J. W. Preston, 215 S. Jefferson St., Roanoke.

WEST VIRGINIA: Charleston, Nov. 19-21. Sec., Dr. S. L. Jepson, Masonic Bldg., Charleston.

Virginia June Examination

Dr. J. W. Preston, secretary of the Virginia State Board of Medical Examiners, reports the written examination held at Richmond, June 18-21, 1918. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of 42 candidates examined, 37, including 1 osteopath, passed, and 5 failed. Thirteen candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Howard University		(1917)	86
Bennett Medical College		(1909)	82
Johns Hopkins University		(1918)	88, 94
Maryland Medical College		(1909) 76; (1913)	78
Leonard Medical School		(1910)	84
Jefferson Medical College		(1915)	93
University of the South		(1901)	81
Medical College of Virginia	(1917) *; (1918) 77, 77, 81, 81, 82, 83, 83, 84, 84, 86, 86, 87, 87, 92.		
University of Virginia	(1918) 86, 87, 87, 89, 91, 91, 92, 93, 93, 96, *.		
Queen's University		(1908)	89
	FAILED		
Rush Medical College		(1899)	67
University of Nashville		(1904)	62
Medical College of Virginia		(1916) 64; (1917) 69; (1918)	61

*No grade given.

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
George Washington University		(1914)	Dist. Colum.
Louisville and Hospital Medical College		(1908)	Indiana
Baltimore Medical College		(1909)	Dist. Colum.
College of Physicians and Surgeons, Baltimore		(1893)	N. Carolina
Johns Hopkins University	(1911) Maryland;	(1912)	Dist. Colum.
St. Joseph Medical College		(1886)	Kansas
University of the City of New York		(1890)	New York
Hahnemann Med. College and Hosp. of Philadelphia		(1901)	Penna.
Medico-Chirurgical College of Philadelphia		(1896)	Penna.
University of Pennsylvania		(1899)	Penna.
Lincoln Memorial University		(1915)	Tennessee
Vanderbilt University		(1915)	Tennessee

West Virginia July Examination

Dr. S. L. Jepson, health commissioner of the West Virginia Public Health Council, reports the oral, practical and written examination held at Wheeling, July 9, 1918. The examination covered 10 subjects and included 100 questions. An average of 80 per cent. was required to pass. Of the 9 candidates examined, 8 passed and 1 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Arkansas		(1918)	83.7
Chicago College of Medicine and Surgery	(1918) 84.4, 84.5, 85.1, 92.1.		
Maryland Medical College		(1904)	88.5
Medical College of Virginia		(1918)	90.5
University of Virginia		(1917)	85.7
	FAILED		
Meharry Medical College		(1918)	75.9

Book Notices

Practical Guide to Diseases of the Throat, Nose, and Ear. For Senior Students and Junior Practitioners. By William Lamb, M.D., C.M., M.R.C.P. Fourth Edition. Cloth. Price, $3.00. New York: William Wood & Co., 1918.

This little volume, intended primarily for the student and general practitioner, is fairly comprehensive, though devoid of much important detail. The subject matter is considered mainly from the standpoint of symptomatology and treatment. The various affections of the throat, nose and ear are not treated as entities but grouped under a few headings. For instance, all symptoms arising from nasal affections are discussed in one or two chapters, and the diagnosis of the different diseases responsible for them indicated according to the predominance of one or more symptoms or group of such findings, following which the treatment is taken up as directed toward this, that or the other combination. The author is conservative in his surgical treatment of tonsillar affections, giving more prominence to tonsillotomy and reserving complete enucleation only for certain well defined cases. This is rather contrary to the generally accepted American view on this subject. Criticism of this attitude, however, should be cautious, as the last word on the tonsil question has yet to be spoken; we are not in the position to say whether the author's views are antiquated or a step ahead of us. Especially meritorious are the chapters on the danger symptoms in suppurative ear diseases and the indications for surgical intervention. These are of high importance to the general practitioner and seldom have been so clearly set forth as in this book. Sufficient of the complex anatomy of the throat, nose and ear is given to make the text more intelligible and to refresh the memory of the general practitioner, to whom these structures have always been more or less of a muddle.

Neurological Clinics: Exercises in the Diagnosis of Diseases of the Nervous System. Given at the Neurological Institute, New York, by the Staff of the First Division. Edited by Joseph Collins, M.D. Cloth. Price, $3. Pp. 271. New York: Paul B. Hoeber, 1918.

The subtitle, "Exercises in the Diagnosis of Diseases of the Nervous System," indicates the function of this volume; it consists of a collection of forty-one reports made by the staff of the first division of the New York Neurological Institute. With few exceptions each of the reports is of a single case, and in length they vary from two to twenty-eight pages. Most of the cases are organic, but there is an excellent report (by Naccarati) on obsessions and fixed ideas; one on a case of paramyoclonus multiplex, and three on dementia praecox. The organic cases present a wide diversity, and every one is interesting and instructive. Vascular lesions, syphilis and tumors receive considerable attention, while of the more unusual things may be instanced progressive hemiplegia, astereognosis without hemiplegia, partial blindness from disease of the accessory nasal sinuses, symptomatic tic douloureux, disseminated lesions of the spinal cord due to malaria, and sudden paraplegia after injections of autolysin (Beebe's serum). Neither neurologist nor general practitioner can read this book without edification and benefit; it is a good place to look for help on a puzzling case.

Clinical Diagnosis: A Manual of Laboratory Methods. By James Campbell Todd, Ph.B., M.D., Professor of Clinical Pathology, University of Colorado. Fourth edition. Cloth. Price, $3 net. Pp. 687, with 244 illustrations. Philadelphia: W. B. Saunders Company, 1918.

The author has had as his aim in the preparation of this manual a practical work for the student and the practitioner rather than the laboratory worker. Clearness and simplicity are requisites for such a book; clearness in description of tests and processes, simplicity in apparatus and equipment—not too many methods, but judicious selection of those to be emphasized and recommended. This has been attained satisfactorily. The considerable amount of space devoted to the technic of the microscope is worth while, the illustrations, both colored plates and photomicrographs, are good, and the information given is up to date, while the interpretation of findings is of great practical value. In this edition many subjects are elaborated, others added, some omitted, and the whole work thoroughly revised.

Medicolegal

Insufficient Evidence of Malpractice—Results and Requirements

(O'Grady v. Cadwallader (Iowa), 166 N. W. R. 755)

The Supreme Court of Iowa, in affirming a judgment in favor of the defendant, who was charged with negligence in reducing and treating a fracture of the radius of the plaintiff's left arm, says that this was purely a fact case, with the burden of proof resting on the plaintiff. The allegation of negligence on which recovery was sought was, first, that the defendant was negligent in not reducing the fracture properly, and second, that he was negligent in using only pasteboard splints at first, and afterward inadequate and improper splints, and in not applying proper bandages and appliances to keep the broken ends in alinement or proper apposition. But there was no direct evidence that the fracture was not properly reduced; no direct evidence that the splints and bandages were not the splints and bandages that are usually and ordinarily used by physicians in the treatment of such injuries; no direct evidence that they were not properly placed on the arm by the defendant at the time.

There was only the following showing as a basic fact on which to conclude, deductively, that the fracture was not properly reduced, and that the proper appliances were not made to hold it in position after reduction: Some of the physicians called by the plaintiff testified that from an examination of roentgenograms made a little more than three months and a half after the fracture, when the plaintiff went to another physician, the bone did not there appear to have been placed in proper apposition, that the alinement was not perfect, and that this condition might be due to the manner in which the fracture was reduced in the first place, or to the manner in which it was treated after it was reduced. But it also appeared from the other physician to whom the plaintiff went that these pictures did not show the true condition of the bone, its position and alinement, as it was actually found by him when he made an incision baring the bone, and did not show the true relationship of the radius to the ulna and the true condition of the fracture. His testimony led the mind to the conclusion that the only defect or deformity found was due to excessive callus adhering to the ulna; that this, chiseled away, left the arm with all its functions perfectly normal. Nor was there anything in the record to show that when the plaintiff ceased his treatments at the hands of the defendant the period had passed when the physician, in good judgment, should have resorted to the open method for relief.

On the facts shown in this record, the court feels that any verdict rendered by a jury would rest on the merest speculation, and could find no support in any tangible fact shown by the plaintiff. A verdict for the plaintiff could not stand on this record, and the trial court was justified in directing a verdict for the defendant.

There is no implied guaranty of results, and all the law demands is that the practitioner bring to the service of his patient and apply to the case that degree of skill and care, knowledge and attention ordinarily possessed and exercised by practitioners of the medical profession under like circumstances and in like localities, and it is the general holding of the courts that the bare fact that full recovery does not result, or that a surgical operation is not entirely successful, is not, in and of itself, evidence of negligence; and, in the absence of any showing from those learned in the profession that there was a failure to do that which ought to have been done in the treatment of the injury, or that there was that done which ought not to have been done in the treatment, there can be no recovery of damages. The fact on which negligence is predicated must be shown either affirmatively, by direct evidence, or deductively, by conditions shown to exist after the treatment. But conditions, even though they show bad results, are not in and of themselves sufficient, but such results may form a basis on which an expert, learned in the profession, may be permitted to base an opinion that the operator failed in the full discharge of his duty in the treatment of the case, or the results would not appear as they are.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Ophthalmology, Chicago

September, 1918, **1**, No. 9

1 Treatment of Blood Cysts of Orbit. H. Gifford, Omaha.—p. 625.
2 Management of Cases of Noninflammatory Glaucoma, Classified as Simple Anterior or Simple Posterior Glaucoma. W. R. Parker, Detroit.—p. 628.
3 Refractive Differences in Foveal and Parafoveal Vision. D. Ogata and F. W. Weymouth, Standford University, Calif.—p. 630.
4 Conjunctivitis Meibomiana (Elschnig). K. Hiwatari, Kagoshima, Japan.—p. 645.
5 Metastatic Endophthalmitis Associated with Epidemic Cerebrospinal Meningitis. H. C. Haden, Galveston, Texas.—p. 647.
6 Quinin Poisoning, Its Ocular Lesions and Visual Disturbances. R. H. Elliot, London, England.—p. 650.
7 Acute Iritis Developed after Amebic Dysentery. R. P. Luna, Guatemala, C. A.—p. 658.
8 Probable Rôle of Teeth and Tonsils in Etiology of Inflammatory Eye Diseases. W. G. Harrison, Birmingham, Ala.—p. 660.
9 Convergent Strabismus Treated by Atropin and Glasses; Cases of Hereditary Strabismus. C. Loeb, Chicago.—p. 667.

American Journal of Medical Sciences, Philadelphia

October, 1918, **156**, No. 4

10 *Huge Hemangioma of Liver Associated with Hemangiomata of Skull and Bilateral Cystic Suprarenals. R. H. Major and D. R. Black, Rosedale, Kan.—p. 469.
11 *Operable Tumor Involving Gasserian Ganglion. C. H. Frazier, Philadelphia.—p. 483.
12 Sahli's Volume Sphygmobolometer; Improvement Over Older Pressure Sphygmobolometer. N. B. Potter, Santa Barbara, Calif.—p. 490.
13 Diagnosis of Chronic Appendicitis. W. F. Cheney, San Francisco. —p. 494.
14 *Multiple Neurofibromatosis (von Recklinghausen's Disease) and Its Inheritance; Report of Case. S. A. Preiser and C. B Davenport, Cold Spring Harbor, N. Y.—p. 507.
15 Teeth and Tonsils as Causative Factors in Arthritis. R. Hammond, Providence, R. I.—p. 541.
16 *Experimental Lesions in Cervical Sympathetic Ganglia in Relation to Exophthalmic Goiter. L. B. Wilson, Rochester, Minn. —p. 553.
17 *Relationship of Origin of Ectopic Contractions to Ventricular Preponderance as Shown by Electrocardiograph. A. E. Strauss, St. Louis.—p. 557.
18 Studies in Cholelithiasis. Immediate Effect of Operations on Cholesterinemia. A. O. Wilensky and M. A. Rothschild, New York.—p. 564.
19 *Reinfection with Streptococcus Hemolyticus in Lobar Pneumonia, Measles and Scarlet Fever; Its Prevention. L. Clendening, Fort Sam Houston, Texas.—p. 575.
20 Milk. D. R. Mendenhall.—p. 586.

10. **Hemangioma of Liver, Skull and Suprarenals.**—A brief summary of the pathologic findings in this case showed: 1. A huge hemangioma of the liver weighing nearly one half (4.9) of the entire weight of the patient. This hemangioma was a growing tumor, an example of a true hemangioblastoma. 2. Two hemangiomas of the skull, located in the temporal bones. 3. Multiple cysts of both suprarenals, apparently the result of congenital disturbances of growth in which connective tissue lymphatics and blood vessels have all played a rôle. Degenerative changes were very marked.

11. **Tumor Involving Gasserian Ganglion.**—In Frazier's patient the operation was performed within three months of the first symptom. The patient was seen fifteen months after the operation and, apart from certain paresthesias, which might well have been due to avulsion of the sensory root, there were no signs of recurrence. The tumor was an endothelioma.

14. **Multiple Neurofibromatosis.**—A description is given by Preiser and Davenport of the occurrence of von Recklinghausen's disease in a father and son, with the necropsy findings in the case of the father, in whom the disease lasted thirteen years. In the case of the son the disease associated with definite mental inferiority and delayed sexual development. A review and analysis of the literature of 243 cases of multiple neurofibromatosis is made, as well as an analysis of thirty cases of the familial type, with charts of families in which there were two or more affected persons in one family. This establishes its hereditary tendency, showing the hereditary factor to be dominant, there being something in the germ plasm that positively facilitates the production, under appropriate stimulation, of tumors of the nerve sheaths. The relation of neurofibromatosis to malignancy is discussed.

16. **Cervical Sympathetic Ganglia and Exophthalmic Goiter.**—Experiments made by Wilson to determine the effect directly on the cervical sympathetic ganglia and indirectly on the thyroid of various forms of stimulation applied to the ganglia of goats showed that irritation from the presence of certain bacteria within the cervical sympathetic ganglia may produce histologic pictures within the ganglia and in the thyroid which parallel those found in the various stages of progressive and regressive exophthalmic goiter. In Wilson's opinion this evidence supports the suggestion that in exophthalmic goiter the thyroid receives its stimulus to overfunction through its nerve supply and as a result usually of a local infection in the cervical sympathetic ganglia.

17. **Ectopic Contractions and Ventricular Preponderance.**—The electrocardiograms of 375 patients who presented some cardiac disturbance (a few were taken on patients in whom no cardiac lesion was suspected), were reviewed by Strauss. Thirty-six per cent. showed evidence of left ventricular preponderance and 10 per cent. showed evidence of right ventricular preponderance, while 2 per cent. showed an apparent change in preponderance at different times and under varying conditions. Premature contractions of all types occurred seventy-six times. In the sixty-three individual cases showing premature beats, eleven showed at least two different types while two cases showed origin in three different foci. Left ventricular premature beats were most frequent, right ventricular, auricular and junctional contractions occurring next in order in diminishing frequency. The greatest percentage of right ventricular preponderance showed right ventricular premature contractions, while the largest percentage of left ventricular preponderance showed ectopic beats arising in the left ventricle. From these facts Strauss deduces a possible etiologic theory to account for the relationship of preponderance and the origin of ectopic beats.

19. **Streptococcus Hemolyticus Reinfection.**—Clendening gives the incidence of *Streptococcus hemolyticus* reinfection in lobar pneumonia, measles and scarlet fever as it occurred at the base hospital, Fort Sam Houston: From Dec. 1, 1917, to March 1, 1918, there were admitted 319 cases of primary lobar pneumonia; forty-four became reinfected with *Streptococcus hemolyticus*. There were ninety-seven cases of empyema with thirty-two deaths. Eighteen of the deaths were due to the streptococcus. There were six cases of delayed resolution with four deaths; one case of lung abscess with profuse expectoration of evil smelling mucilaginous sputum which contained both pneumococci, streptococci and hemolytic streptococci. The patient recovered. Four patients had localized areas of persistent pulmonary infection but finally recovered. During this same period there were admitted to the hospital 716 cases of measles. Many of the cases of otitis media cultured had streptococci present. So also did certain of the tonsillitides, etc. In all there were about 150 cases of otitis; eighty-nine cases of bronchopneumonia (forty-two deaths); twelve cases of articular rheumatism, nonsuppurative, one case of suppurative arthritis, with general sepsis, and two cases of meningitis with general sepsis. All of these may be ascribed to *Streptococcus hemolyticus*. The complications known to be due to *Streptococcus hemolyticus* in measles were ninety-seven. In 134 cases of scarlet fever there were seven cases of streptococcus reinfection. Three of these were pneumonias, with one death.

The procedure now instituted at this hospital is to segregate every case of pneumonia, every case of measles and every case of scarlet fever for a twenty-four hour period. During this time a swab culture is made of the throat. When it has been determined by the laboratory whether or not the patient is a streptococcus carrier he is delivered to a proper ward. Prior to the determination of the presence of the streptococcus in the patient's throat he should have individual isolation—if possible in a room or a tent by himself; if not,

then in a room with as few other patients as possible, separated from them so far as possible, and with the most rigid prevention of contact, by use of screens or sheets between beds. With an adequate number of single rooms in a receiving ward this could be accomplished there, it being the duty of the receiving officer to see that all cases are properly cultured and reported to the proper ward. In addition to this it may be necessary to culture the nonstreptococcus wards at various intervals, probably once or twice a week, as there will be some streptococcus carriers not detected on a single throat swab. Separation of beds by sheets is of course still necessary. The incidence of bronchopneumonia in measles by this method is considerably cut down. The result of separating streptococcus carriers with lobar pneumonia has entirely done away with streptococcus reinfections.

American Journal of Public Health, Boston

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21 Program of War Department Against Venereal Disease. W. F. Snow and W. A. Sawyer.—p. 639.
22 Protection Against Food Contamination. C. E. McCombs, New York.—p. 644.
23 Ice Cream Epidemics and Model Regulations for Control. H. W. Hamilton.—p. 651.
24 Feeblemindedness and Social Environment. P. H. Bryce, Ottawa, Ont.—p. 656.
25 Bacterial Examination of Green Vegetables. F. W. Kurk, Chicago. —p. 660.
26 Public Health Instructor—New Type of Health Worker. E. V. Brumbaugh, Milwaukee, Wis.—p. 662.
27 Some Public Health Lessons of War. E. C. Levy, New York. —p. 664.
28 Bibliography of Field Water Supply. J. J. Hinman, Jr., Iowa City, Iowa.—p. 668.
29 Charts and Maps as Used by Health Officers. G. T. Swarts, Jr., Providence, R. I.—p. 674.
30 Transport Sanitation. C. W. Berry.—p. 690.

Archives of Ophthalmology, New Rochelle, N. Y.

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31 Some Ocular Conditions Affecting Efficiency of Aviator. W. H. Wilmer.—p. 439.
32 Need of Ophthalmologic Clinic in Penal Institutions. The Clinic at Sing Sing Prison. C. Berens, Jr., New York.—p. 448.
33 Results from One Hundred and Twelve Wassermann Blood Tests in Missouri School for Blind. J. W. Charles and H. D. Lamb, St. Louis.—p. 455.
34 Case of Embolism of Central Retinal Artery in Chorea. A. Knapp, New York.—p. 459.
35 Histologic Findings in Eyeballs Lost Through Complications Following Sclerocorneal Trephining. W. G. M. Byers, Montreal. —p. 462.
36 Spasm of Accommodation. J. W. White, New York.—p. 466.
37 Report of Several Pathologic Pupillary Cases, with Especial Reference to what Constitutes a True Argyll Robertson Pupil. J. Dunn, Richmond, Va.—p. 469.
38 Cavernous Sinus Thrombosis; Report of Five Cases. D. Smith, Bridgeport, Conn.—p. 482.
39 Acute Streptothrix Infection of Conjunctiva. A. Knapp and J. G. Dwyer, New York.—p. 497.

Boston Medical and Surgical Journal

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40 Treatment of Organic Heart Disease in Pregnancy and Labor. F. S. Newell, Boston.—p. 465.
41 Heart Lesions in Anesthesia. F. L. Richardson, Boston.—p. 470.
42 Normal Heart in Navy. G. F. Freeman, Boston.—p. 475.
43 Use of Roentgen Ray in Examination of Heart and Aorta. G. W. Holmes, Boston.—p. 478.

Delaware State Medical Journal, Wilmington

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44 Leukemia. J. W. James, Dover.—p. 5.

Illinois Medical Journal, Chicago

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45 Practice of Preventive Medicine. W. S. Sadler, Chicago.—p. 113.
46 Postponing Old Age. C. J. Whalen, Chicago.—p. 120.
47 Practical Ideas Regarding Treatment of Acidosis, Commonly Called Uremia. J. H. Stealy, Freeport.—p. 129.
48 Congenital Hypertrophic Pyloric Stenosis. C. W. Poorman, Chicago.—p. 133.
49 Fallacies of Face Mask in Control of Acute Infectious Diseases. A. L. Hoyne, Chicago.—p. 136.
50 Surgical Treatment of Unilateral Renal Tuberculosis; Importance of Early Diagnosis. H. L. Kretschmer, Chicago.—p. 138.
51 Study of Physical Condition in Selective Draft of 1917. C. B. Johnson, Champaign.—p. 143.
52 Civil Administrative Code of Illinois and Medical Practice Act. F. W. Shepardson, Springfield.—p. 146.
53 Exophthalmic Goiter. E. P. Sloan, Bloomington.—p. 155.
54 History of Illinois State Medical Society. G. N. Kreider, Springfield.—p. 158.
55 Treatment of Mercuric Chlorid Poisoning. B. Fantus, Chicago. —p. 159.
56 Prophylactic Use of Pituitary Extract in Nose and Throat Operations Under General and Local Anesthesia. S. Salinger, Chicago.—p. 164.
57 Relation Between Public Health, Tuberculosis and Medical Education. W. B. Metcalf, Chicago.—p. 169.

Journal of Experimental Medicine, Baltimore

October, 1918, **28**, No. 4

58 *Experimental Parotitis. M. Wollstein, New York.—p. 377.
59 Encystment of Dysentery Amebae in Vitro. K. Yoshida, Fukuoka, Japan.—p. 387.
60 *New Nonpathogenic Tetragenous Ameba. S. Shimura, Fukuoka, Japan.—p. 415.
61 *Rat and Poliomyelitis; Experimental Study. H. L. Amoss and P. Haselhauer, New York.—p. 429.
62 Spirocheta Hebdomadis, Causative Agent of Seven Day Fever (Nanukayami). Y. Ido, H. Ito and H. Wani, Fukuoka, Japan. —p. 435.
63 *Antimeningitis Vaccination: Agglutinins in Blood of Chronic Meningococcus Carriers. F. L. Gates, New York.—p. 449.
64 *Origin of Tumors in Mice: V. Tumor Rate in Hybrid Strains. A. E. C. Lathrop and L. Loeb, St. Louis.—p. 475.
65 Stability of Acid-Base Equilibrium of Blood in Naturally Nephropathic Animals and Effect on Renal Function of Changes in this Equilibrium. I. Functional Capacity of Kidney Following Anesthetic. W. deB. MacNider, Chapel Hill, N. C.—p. 501.
66 Id.: II. Efficiency of Alkali to Protect Against Toxic Effect of Anesthetic. W. deB. MacNider, Chapel Hill, N. C.—p. 517.

58. **Experimental Parotitis.**—A new series of inoculations into cats of the filtered sterile salivary secretions derived from cases of parotitis was made by Wollstein. They confirm the observations made in 1915-1916 and confirmatory evidence of the filterable nature of the causative agent of mumps has been obtained. It has been determined that the saliva of man and of inoculated cats, and the inoculated glands of the latter animals, contain the filterable, infective agent. The "virus" of parotitis was detected most readily in the saliva during the first three days of the disease, less easily on the sixth day, and not at all on the ninth day. It was detected also in the blood of patients showing marked constitutional symptoms, and in the saliva of a case of recurrent mumps at the periods of enlargement of the parotid glands, but not two weeks after the swelling had subsided. It was not detected in the cerebrospinal fluid.

60. **Nonpathogenic Tetragenous Ameba.**—In the study of the amebas of dysentery Shimura discovered in the feces of healthy persons a new type of tetragenous ameba, which, like the dysentery ameba, forms a cyst containing four daughter nuclei, but which differs from it in biologic and morphologic properties. Experiments made on animals and clinical findings have demonstrated the nonpathogenicity of the new organism.

This ameba was observed by the author in six cases; that is, in five persons with a normal condition of the intestine and in one having a chronic catarrh of the large intestine, not dysenteric in character. In every instance the vegetative form of the ameba was found in the saline (Carlsbad salt) diarrheal stools and the cyst in the formed stools. The person failed to show any symptoms of amebic dysentery, even after long purging; on discontinuing purgation they evacuated normal dejecta and showed no manifestations of illness.

61. **Rat and Poliomyelitis.**—The central nervous organs and other viscera of six rats, collected by Amoss and Haselbauer in a district in Greater New York in which many cases of epidemic poliomyelitis occurred, have been proved incapable of inciting, on inoculation, experimental poliomyelitis in *Macacus rhesus* monkeys. The virus of poliomyelitis injected into the brain of white rats does not survive there as long as four days in a form or in amounts sufficient to cause infection when inoculated intracerebrally into monkeys.

The failure of the virus injected into the brain of rats to incite infection in monkeys is not due to the quality introduced, since at the expiration of one and one-half hours after the injection, the excised inoculation site when injected into the monkey caused typical experimental poliomyelitis.

It does not appear probable, therefore, that the rat acts in nature as the reservoir of the virus of poliomyelitis.

63. **Antimeningitis Vaccination.**—Following an outbreak of epidemic meningitis at Camp Funston, Kansas, in October and November, 1917, a meningococcus vaccine suspended in salt solution was given subcutaneously as a prophylactic to about 3,700 volunteers in three injections of 2,000 million, 4,000 million, and 4,000 or 8,000 million cocci at weekly intervals. These doses rarely caused more than the mildest local and general reactions. Exceptionally a more severe reaction emphasized the presence of an unusual individual susceptibility to the vaccine. In such instances the symptoms were in part those of meningeal irritation and sometimes simulated the onset of meningitis. Specific meningococcus agglutinins were demonstrated in the blood serum of vaccinated men as compared with normal controls. Moreover, agglutinins were demonstrated in the blood serum of chronic carriers of the meningococcus. Evidence is thus brought forward that the relative immunity of chronic carriers to epidemic meningitis may be due to the presence of specific antibodies in the blood stream.

64. **Origin of Tumors in Mice.**—The results of these investigations confirm the previous conclusion reached by Lathrop and Loeb that in the majority of the crosses observed, the cancer rate is either intermediate between those of father and mother strain, or that it follows the tumor rate of the parent with the higher rate and only in a relatively small number of instances the cancer rate follows that of the parent strain with the lower tumor rate. On the whole, the heredity of cancer rate and cancer age follows the blending type of hereditary transmission.

Journal of Immunology, Baltimore

May, 1918, **3**, No. 3

67 *Influence of Active Normal Serum (Complement) on Meningococci. I. Opsonic Activity of Fresh Normal Serum Alone and in Combination with Antimeningitis Serum for Meningococci. J. A. Kolmer, I. Toyama and T. Matsunami, Philadelphia.—p. 157.

68 *Id. Bactericidal and Protective Value of Fresh Normal Serum Alone and in Combination with Antimeningitis Serum for Meningococci. T. Matsunami and J. A. Kolmer, Philadelphia.—p. 177.

69 *Relation of Meningococcidal Activity of Blood to Resistance to Virulent Meningococci. T. Matsunami and J. A. Kolmer, Philadelphia.—p. 201.

70 *Experiments on Production of Antipoliomyelitic Serum in Rabbits. E. T. H. Tsen, New York.—p. 213.

71 Study of Problems of Immunity by Tissue Culture Method. I. Estimating Toxin and Antitoxin. M. T. Burrows and Y. Suzuki, St. Louis.—p. 219.

72 *Id. II. Cells and Blood Plasma of Animals which are Naturally Resistant and Others which are Susceptible to Diphtheria and Tetanus Toxins. Y. Suzuki, St. Louis.—p. 233.

67. **Opsonic Activity of Fresh Normal Serum.**—The phagocytic activity of antimeningitis serum was found most marked while the serum was fresh and active; after heating or after the addition of 0.2 per cent. tricresol to a serum followed by standing at room temperature for four days or longer, the phagocytic activity was diminished to a considerable degree due, presumably, to the loss of labile opsonin or complement. Fresh normal human and guinea-pig serums possess well defined amounts of opsonin for virulent meningococci in final dilutions as high as 1:16 or 1:32; as a general rule human serum has a higher opsonin content than guinea-pig serum. The serums of different persons and guinea-pigs were found to vary to a slight extent in opsonic activity. The addition of fresh normal human or guinea-pig serum to various antimeningitis serums as prepared and marketed for administration, was found to definitely and uniformly increase the opsonic activity for various strains of meningococci. The cerebrospinal fluid in meningococcus meningitis is generally free of complement or contains but traces; normal cerebrospinal fluid is always free of this serum constituent as, likewise, of opsonin for meningococci (Davis).

As based on accepting the opsonic activity of antimeningitis serum in vitro as an index of its curative power, it would appear justifiable to conclude that fresh normal human and guinea-pig serums alone may possess curative properties when brought into direct relation with meningococci and that the addition of either these normal serums and particularly fresh human serum to antimeningitis serum, as secured in the market, increases opsonic activity. It would appear worthy of clinical test to add 1 c.c. of fresh sterile human or guinea-pig serum to each 9 c.c. of antimeningitis serum, before intraspinal injection and particularly in the treatment of severe and serum resistant cases of meningococcus meningitis, for the purpose of increasing the phagocytosis of the micro-organisms.

68. **Bactericidal and Protective Value of Fresh Normal Serum.**—The bactericidal activity in vitro of different antimeningitis serums was found to be quite low. Fresh or active antimeningitis serums were somewhat more bactericidal than the same serums after inactivation by heating at 60 C. for thirty minutes. Active normal human and guinea-pig serums are generally slightly bactericidal for meningococci. The bactericidal activity of horse antimeningitis and normal human and guinea-pig serum, is largely independent of complemental bacteriolysis. The addition of active normal human and guinea-pig serum to antimeningitis serum sometimes increased the bactericidal activity of the latter. Whole human and guinea-pig blood found slightly more bactericidal than the serums alone. Normal human and guinea-pig serums frequently agglutinate meningococci in final dilutions up to 1:4, but not in higher dilutions.

Antimeningitis serums containing the largest amounts of agglutinin were found to possess most opsonin and apt to prove most bactericidal in vitro. Normal active human and guinea-pig serums were practically without demonstrable protective value in mice infected with virulent meningococci, although the addition of these normal serums to antimeningitis serum appeared in some experiments to slightly increase the protective power of the latter. Since it would appear that a large part of the curative properties of antimeningitis serum is to be ascribed to the presence of opsonin, it is suggested as worthy of clinical trial to complement the antimeningitis serum by the addition of active human or guinea-pig serum prior to intraspinal injection and particularly in the treatment of severe and serum resistant infections.

69. **Meningococcidal Activity of Blood.**—Bactericidal tests with a strain of virulent normal meningococci and the blood of adult white mice, adult rabbits and young and older guinea-pigs, have shown that the blood of rabbits possesses most bactericidal activity; the blood of old guinea-pigs was found somewhat more bactericidal than the blood of young guinea-pigs and white mice. The blood of young guinea-pigs was generally slightly more bactericidal than the blood of adult white mice. In the virulence tests consisting in the intraperitoneal injection of the same culture in graded doses and according to body weight, rabbits were found most resistant; young guinea-pigs were about as susceptible as adult mice while older guinea-pigs were somewhat more resistant than either.

The results of these experiments indicate therefore, that there is a general parallelism between the meningococcidal activity of the blood and resistance to meningococci and that at least one factor in natural immunity to the meningococcus is the presence of bactericidal substances in the blood. The results of these studies indicate that the meningococcidal activity of blood of children is somewhat less than that of adults; the bactericidal activity of the latter is comparable to the meningococcidal activity of the blood of mice and young guinea-pigs. It is probable that certain persons possess sufficient natural immunity to the meningococcus to afford protection against meningitis and it is highly desirable to discover a simple and accurate clinical test or measure of this resistance comparable to the Schick test for antitoxic immunity in diphtheria, as a means for encouraging active immunization with meningococcus vaccines; the bactericidal test as described while being simple and fairly rapid does not meet these requirements by reason of the possibilities of error and variation, though it possesses definite value as a strictly laboratory procedure in special investigations.

70. **Production of Antipoliomyelitic Serum.**—Rabbits could not be immunized with poliomyelitis virus to produce serum which could restrain or neutralize the effect of the virus.

72. **Cells and Blood Plasma Resistant to Toxins.**—Suzuki has been able to show definitely that the natural immunity of rats for diphtheria toxin and chickens for tetanus is due to two factors—a special resistance of at least certain of the cells of these animals and further to the existence of neutralizing substances in their plasma. The plasma of these animals protects not only the cells of these animals against lethal doses of toxin but it also protects the cells of susceptible animals. So far heart muscle and ovary or in other words connective tissue cells have alone been studied. A sufficient number of experiments have not been made to give quantitative results.

Medical Record, New York

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73 Treatment of Four Hundred Cases with Radium. R. Duncan, Los Angeles.—p. 617.
74 Juvenile Peripheral Gangrene in Infectious Diseases: Diphtheria. F. Robbins, New York.—p. 620.
75 Therapeutics of Phenylcinchoninic Acid. R. W. Wilcox, New York.—p. 625.
76 Unique Case of Rheumatism and Its Management. W. H. Porter, New York.—p. 627.
77 Modern Therapeutics in New York State Hospitals for Insane. S. L. Dawes, New York.—p. 629.
78 Mortality Statistics of Diabetes Among Wage Earners. L. I. Dublin, New York.—p. 631.
79 Origin of So-Called "Spanish Influenza" in the Pneumonic Plague of North China. J. J. King, New York.—p. 632.
80 Action of Chlorin on Suture Material. G. L. Servoss, Reno, Nevada.—p. 634.

Medicine and Surgery, St. Louis

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81 Ulcer of Stomach. M. E. Hehfuss, Philadelphia.—p. 603.
82 Effect of Disease of Lower Bowel on Rate of Emptying Stomach. F. W. White, Boston.—p. 618.
83 Developmental Exercises for Chronic Intestinal Invalid. J. Bryant, Boston.—p. 725.
84 Getting Results with Chronic Intestinal Invalid. J. Bryant, Boston.—p. 634.
85 Unusual Types of Diarrhea. T. R. Brown, Baltimore.—p. 640.
86 Carcinoma of Colon; Early Diagnosis. J. A. Lichty, Pittsburgh.—p. 646.
87 Endocrine Functions and Digestive Apparatus. L. F. Barker, Baltimore.—p. 655.
88 Fractional Analyses of Gastric Secretion in Ulcer of Stomach and Duodenum. J. Friedenwald and T. F. Leitz, Baltimore.—p. 679.
89 Pathology of Chronic Appendicitis. O. Klotz, Pittsburgh.—p. 687.
90 Fractional Study of Gastric Contents. G. W. McCaskey, Fort Wayne, Ind.—p. 693.
91 Case of Epigastric Tumor. J. C. Hemmeter, Baltimore.—p. 697.
92 History of Obstetrics from Earliest Times to Beginning of Seventeenth Century. F. E. Leavitt, St. Paul.—p. 707.
93 Treatment of Certain Hemorrhages of Uterus with Radium and Roentgen Rays. H. Schmitz, Chicago.—p. 714.
94 Vomiting of Pregnancy. F. L. Adair, Minneapolis.—p. 719.
95 Cervicitis and Vaginal Leukorrhea as Etiologic Factors in Neurasthenia and Hysteria in Women. A. R. Hollender, Linden, Wis.—p. 727.
96 Conservative Surgery in Operations on Fallopian Tubes with Reference to Future Pregnancies; Two Cases. F. Warner, Columbus, Ohio.—p. 731.

Military Surgeon, Washington, D. C.

October, 1918, **43**, No. 4

97 *Medical Work with American Expeditionary Forces. R. B. Osgood.—p. 369.
98 Foot Problem. T. S. Mebane.—p. 377.
99 *Empyema at Camp Lewis. E. W. Rockey.—p. 384.
100 *Communicable Diseases in National Guard and National Army During Six Months from September 29, 1917, to March 29, 1918. V. C. Vaughan and G. T. Palmer.—p. 392. To be continued.
101 History of Base Hospital, Camp Sherman, Chillicothe, Ohio. C. A. Wood.—p. 445. Concluded.

97. **Medical Work with Expeditionary Forces.**—Osgood states that the three professional divisions therefore which are represented by their specialists in the combat divisions are genito-urinary, psychiatry and orthopedic surgery. If the cases reach the evacuation hospitals within ten or twelve hours of receipt of their wounds, it is possible to perform primary, delayed primary and secondary suture on nearly 90 per cent. The quick return of the wounded to the evacuation hospital, where the most skilled surgical service can be rendered, thus diminishes the surgery done in the field hospitals and limits it practically to emergencies only. The wounded men with fractures are coming back in splendid shape to the evacuation hospitals. Thus far the splinting has been excellent. In times of push of course the necessity of moving back cases very quickly prevents such a high percentage of early closures from being attained as is possible in times of comparative quiet.

When the cases can safely be removed from the evacuation hospitals, they go back either to the base hospitals of the advanced zone, the special hospitals of the advanced zone, or sometimes directly to the base hospitals of the intermediate and base zones. The special cases of bone and joint injury are segregated so far as possible and sent to special bone and joint hospitals. One is already established in the advanced zone and several others in the intermediate and base zones. In the advanced zone there are also special psychiatric and genito-urinary hospitals. From the base hospitals in the advanced zone, cases of amputation are sent to a special center and segregated. There the early treatment for weight bearing is begun. There are gradually being established, in orthopedic centers, curative workshops. A certain amount of very simple mechanotherapeutic apparatus is installed in these centers.

Every one who comes in contact with the severely wounded soldier, who has been through hardships and suffered and has emerged in a more or less crippled condition, recognizes the importance of beginning, as soon as possible, to combat the idea of crippledom and to awaken and foster a spirit of future usefulness. If at this stage the soldier can be given something to do with his hands and to occupy his mind as well, and he can come in contact with a simulating personality who is not a soldier and who will not talk battles with him, he gains comparatively quickly the conception of a possible wage-earning capacity and a return to a useful place in the body politic. He recognizes that his duty to the nation does not end with the end of his fighting and that his disability is a disability to be overcome.

99. **Empyema at Camp Lewis.**—Pneumococcus empyema was treated successfully at Camp Lewis by rib resection and simple drainage. From the progress of the yet incomplete cases (final results will be reported later), Rockey feels that the most efficient method of treating streptococcus empyema has been by thoracotomy, with constant negative pressure. This is shown by: (*a*) absence of mortality; (*b*) smooth postoperative convalescence, except in cases of too early removal of drainage tubes; (*c*) absence of pneumothorax, as proved by roentgen ray; (*d*) economy of materials and labor.

100. See Abstract No. 42, THE JOURNAL, Oct. 12, 1918, p. 1248.

Modern Hospital, St. Louis

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102 An Institution for Free Treatment of Tuberculosis Maintained by Modern Woodmen of America. J. A. Rutledge, Woodmen, Colo.—p. 155.
103 How American Red Cross in France Mends Mutilated Faces. K. De Monclos.—p. 158.
104 Health Insurance; Its Medical and Hospital Aspects. J. A. Lapp.—p. 160.
105 How to Build an Efficient General Hospital for Small Community. E. E. Bailey, Pittsburgh.—p. 165.
106 Some Problems of Hospital Management. H. E. Tuley, Louisville, Ky.—p. 169.
107 Hospital Accounting. C. A. Porter and H. K. Carter, St. Louis.—p. 173.
108 Life Saving Surgical Dressing Squads in France. C. H. Crawford.—p. 178.
109 New Experiment in Team Work for Public Health. C. Dinwiddie, Cincinnati.—p. 180.
110 Little Journeys to Places and People Worth Knowing. M. J. Robinson, Chicago.—p. 183.
111 Mental Hygiene and War. E. A. Prince, New York.—p. 196.
112 Trained Attendant. F. Dakin, Middletown, Ohio.—p. 198.

Nebraska State Medical Journal, Norfolk

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113 Complement Fixation in Tuberculosis. H. J. Lehnhoff.—p. 265.
114 Tuberculosis. A. K. Detwiler, Omaha.—p. 268.
115 Early Diagnosis of Cancer of Uterus. P. Findley, Omaha.—p. 273.
116 Nuclear Paralysis. F. F. Teal, Lincoln.—p. 276.
117 Treatment of Syphilis. C. C. Tomlinson, Omaha.—p. 277.
118 Roentgen Diagnosis of Carcinoma of Stomach, Colon and Rectum, A. F. Tyler, Omaha.—p. 280.
119 Carcinoma Head of Pancreas. A. Sachs, Omaha.—p. 283.

New Orleans Medical and Surgical Journal

October, 1918, **71**, No. 4

120 *Sodlium Citrate in Treatment of Pneumonia: Cases. W. H. Weaver, New Orleans.—p. 181.
121 Shell Shock—Psychoneurosis of War. C. S. Holbrook, Jackson. —p. 191.
122 Running Ear. G. J. Taquino, New Orleans.—p. 203.
123 Cross-Eyed Child Neglected. J. Hume, New Orleans.—p. 206.

120. **Sodium Citrate in Pneumonia.**—Weaver says that it is highly probable that some who have tried this treatment and have been disappointed in its results have not given the citrate in large enough doses. In an adult, 40 to 60 grains every two and a half to three hours, must be continued day and night until the lung has entirely cleared. If the citrate is discontinued before complete resolution there will be an immediate relapse. This relapse will again clear away under the influence of the citrate. This will be absolute proof that the citrate is responsible for the recovery by lysis. Thirty-six cases have thus far been treated and a rapid recovery has resulted in each instance.

New York Medical Journal

Oct. 12, 1918, **108**, No. 15

124 *Anti-Influenza Vaccine as Prophylactic. W. H. Park, New York. —p. 621.
125 Pathology of Prevailing Influenza Pandemic. D. Symmers, New York.—p. 621.
126 Clinical Aspects of Influenza. H. W. Berg and J. G. M. Bullowa, New York.—p. 624.
127 Treatment of Influenza. W. A. Bastedo, New York.—p. 626.
128 Concomitant Bronchoscopy and Esophagoscopy. S. Iglauer, Cincinnati.—p. 627.
129 Day Phantasies in Child. A. Stern, New York.—p. 628.
130 Spontaneous Pneumothorax in Pulmonary Tuberculosis. M. Kahn, Brooklyn.—p. 632.
131 Real Value of Fresh Air in Tuberculosis and Many Infectious Diseases. C. Gluck, New York.—p. 632.
132 Improving Sight of Soldiers and Sailors and Relieving Pain. W. H. Bates, New York.—p. 639.

124. **Anti-Influenza Vaccine as Prophylactic.**—Park says that as the investigations have proceeded in Boston, New York, and elsewhere, it has become more and more probable that the primary cause of the disease is the influenza bacillus and that the complicating infections, due to the streptococci and pneumococci, are superimposed. It is fair to assume that the strain of the influenza bacillus responsible for this epidemic is an especially virulent one differing somewhat from the strains previously in Park's midst. The streptococci and pneumococci may be communicated from the sick with the influenza bacillus or they may have been present for some time before the attack. The influenza bacilli have been found in almost every case of clear cut infectious influenza. In the complicating pneumonias, they have been found associated with either the streptococci or pneumococci. In one case the bronchopneumonia was due entirely to the influenza bacillus. The results of the Department of Health of the City of New York, in fact, have closely agreed with those reported from the United States Naval Hospital at Chelsea, Mass., by Dr. J. J. Keegan, in THE JOURNAL, Sept. 28, 1918.

Southwestern Medicine, El Paso, Texas

August, 1918, **2**, No. 8

133 Syphilitic Aortitis. R. E. Thomas, Phoenix, Ariz.—p. 1.
134 Public Health and War. W. O. Sweek, Phoenix, Ariz.—p. 8.
135 Trench Fever. G. Werley, El Paso.—p. 11.
136 Paralysis of Recurrent Laryngeal Nerve Associated with Pulmonary Tuberculosis. A. D. Wilson, Prescott, Ariz.—p. 14.
137 Cheiloplasty of Lower Lip for Neglected Carcinoma. V. A. Smelker, Nogales, Ariz.—p. 17.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Sept. 21, 1918, **2**, No. 3012

1 Nature and Symptoms of Cardiac Infection in Childhood. F. J. Poynton.—p. 305.
2 *Association of Rickettsia Bodies in Lice with Trench Fever. J. A. Arkwright, A. Bacot and F. M. Duncan.—p. 307.
3 *Work of Department for Employing Expectant Mothers in Munition Factory. R. H. B. Adamson and H. Palmer-Jones.—p. 309.
4 Three Fatal Cases of B. Aertrycke Infection. A. J. Jex-Blake and W. J. Wilson.—p. 310.
5 Ventral Hernia; Use of Filigree to Strengthen Abdominal Wall. H. H. Greenwood.—p. 312.
6 *Boot Heels as Cause of Flatfoot, Soldier's Heart, Myalgia, etc. S. D. Fairweather.—p. 313.

2. **Rickettsia Bodies in Lice and Trench Fever.**—The constant presence, after a suitable lapse of time, of rickettsia bodies in lice which have been fed on a trench fever patient has been confirmed by Arkwright and Duncan. The absence of rickettsia bodies from lice bred in captivity and fed only on healthy men has been shown by them. A very close correlation has been shown to exist between the presence of rickettsia bodies in lice or the excreta of lice and the virulence of these materials when inoculated into men.

3. **Employing Expectant Mothers in Munition Factory.**—Since the outbreak of the present war the numbers of married women of child-bearing age who have entered into industrial employment have steadily increased. Apart from the necessity for engaging in well paid work experienced by these women, various industries have discovered that these married women are valuable servants, who are reliable workers in different processes and who cannot always be replaced by satisfactory substitutes if they leave work. Up to a recent date there has been no fixed routine of procedure in dealing with women factory employees who have become pregnant. In some instances the condition has been ignored and the woman has been allowed to work at any process as long as she has wished to do so without any regard to the suitability of the work on which she is engaged. In other cases the custom has been to dismiss an expectant mother directly her condition becomes apparent regardless of the question of her ability to work to a later date.

The prematernity scheme in Leeds was opened for the transfer of women in April, 1918. The women themselves apply at each factory to their welfare supervisor to be enrolled for employment under the scheme. They fill in a form of application, and sign an agreement to accept the wages offered for this class of work. This form is forwarded to the lady superintendent in charge of the scheme, who notifies the factory medical officer of the applications. The factory medical officer examines all applicants as soon as possible, and sends in a report on them as to date and number of pregnancy, date of expected labor, complications if any, and the grade or work for which they are then suitable, and the desirable dates for transfer to lighter work. From this tabulated list of applicants the lady superintendent of the scheme is able to transfer women to their special work as they become eligible provided there is a vacanacy by the delivery of women further advanced in pregnancy working under the scheme. Women on becoming pregnant are very adversely affected by night work apart from any degree of heaviness. For this reason the aim of the scheme is to place expectant mothers on day work only as a routine at the end of the fourth month of pregnancy, and sooner than this date if there is a complaint of great discomfort due to night work. As soon as these women notify their pregnancy, even though they have not reached the end of the fourth month, they are removed from any work involving heavy lifting or sudden strain.

On reaching the end of the fourth month of gestation, or earlier if there is any medical reason, these women are transferred to light sedentary work at a factory engaged in the gaging and assembling of fuse parts. They work from 7:30 a. m. till 5:30 p. m., with the usual factory breaks for meals. They are given the less skilled operations in this factory, as it is not worth while devoting much time to teaching them any work at which they will be employed only a few months. They are paid at the ordinary standard rate for their work. At the end of the seventh month, or earlier if there is any medical reason, these women are transferred from the fuse factory to a department which for convenience is described as the general clothing store and sewing dépôt. Here they work from 9 a. m. till 5 p. m., with breaks for meals as in the factory. They are engaged on the making and mending of the overalls, caps, trouser suits, gloves, etc., supplied by the factory management for the use of their workers. The last hour of the day is given up to the making of clothes for the baby under the help and guidance of the sewing dépôt

forewoman. They are encouraged to lie down in the rest room during part of their dinner hour, and at any time if they are temporarily indisposed. The women make their own arrangements for attendance during confinement. They may remain at work until labor begins, if they wish to do so.

6. **Boot Heels Cause of Flatfoot, Soldier's Heart, etc.**—In a normal barefooted man the balance of the body is so perfect that practically no effort is required to keep erect. The weight rests on the heels and outer sides of the feet, not on the arch or inner sides of the feet. Fairweather says that if the heels are raised from the ground by boot heels even a quarter of an inch thicker than the soles the outer side of the foot is removed from the ground and the weight falls on the arch. The center of gravity is also thrown forward, and in a man of 5 feet 7 inches the head is thrown 9 inches off the vertical by a heel three-quarters inch high. To remedy this, and to prevent falling forward, the back muscles and the extensors of thigh and foot come into action. The peroneus longus and brevis, while extending the foot, also evert it, and the tibialis anticus, which supports the arch and inverts the foot, gets elongated and ceases to act. A soldier, 5 feet 7 inches, weighing 154 pounds, and wearing a heel three-quarters inch thicker than the sole, has to exert strength enough to be constantly lifting 56 pounds, from the ground in trying to retain his balance. In a man loaded with 60 pound equipment this means that he has to support to 116 pounds, nearly doubling the weight he is supposed to carry.

Fairweather is convinced that this is doubtless one factor in the etiology of soldier's heart, as every heart, even if healthy, is not equal to this strain. To preserve the lumbar curve without overtaxing the back muscles women are obliged to use corsets. The use of waist belts by men is similarly explained. The waste of neuromuscular energy in retaining an erect posture when wearing heels is vary great, and must play a large part in producing hysteria, neurasthenia, and possibly refraction troubles. Heels are also partly responsible for hammer toes, the long flexors of the toes being supplied by the same nerve as the calf muscles, and getting spastic with them. Fairweather thinks sprained ankles, the stoop of old age, asthma, varicose veins, weak back, and spinal curvature may also be partly due to the effect of heels.

A rational boot should have the soles and heels of the same thickness. Under the arch of the foot the sole should be curved with a convexity upward, but not so convex as to cause pressure on the sole. The leather could be reinforced by spring steel from the heel to the ball of the foot. The inner edge of the boot should be straight, so as to allow the big toe to be in line with the inner side of the arch, as in American boots. In hopeless cases of flatfoot a boot with no heel will at least be more comfortable than the present day boot. The spastic calf muscles will not relax immediately the boot heels are discarded, and consequently at first some awkwardness will be felt in walking. Very soon, however, the tibialis anticus develops, the ankles get stronger, the legs straighter at the knees, the foot gets shorter as the arch recovers, and any tendency to eversion disappears. The figure gets more erect, the chest capacity increases, and walking becomes a pleasure, and as the neuromuscular energy (wasted in neutralizing the forward tilt caused by boot heels) becomes conserved, the health, strength and stamina improve.

Dublin Journal of Medical Science

August, 1918, **146**, No. 560

7 Clinical Report of Rotunda Hospital, November, 1915, to October, 1916. W. Smyly, R. D. Purefoy and E. H. Tweedy.—p. 49.
8 Relation of Consciousness to Sympathetic System. E. Wooton.—p. 60.

Glasgow Medical Journal

August, 1918, **90**, No. 2

9 Trinitrotoluene Poisoning; Five Cases. A. W. Gregorson and F. E. Taylor.—p. 65.
10 Polioencephalitis and Epidemic Disease of Obscure Origin. R. M. F. Picken.—p. 81.
11 Outbreak of Acute Febrile Disease in Three Factories and Industrial School in Glasgow. A. Maclean.—p. 84.
12 Vitiligo; Four Cases. A. W. Harrington.—p. 87.

Journal of Tropical Medicine and Hygiene, London

Sept. 16, 1918, **21**, No. 18

13 Dengue-Like Fever in Dutch Guiana. C. Bonne.—p. 199.

Lancet, London

Sept. 21, 1918, **2**, No. 4960

14 *Prevention and Arrest of Lice-Borne Diseases by New Methods of Disinfection. W. Hunter.—p. 377.
15 *Combined Embarkation and Boat Distribution Scheme. H. Hemsted.—p. 382.
16 Case of Sudden Death After an Anesthetic in Latent Case of Shell Gas Poisoning. P. Turner.—p. 384.
17 *Typhus. Weil-Felix Serologic Test. C. M. Craig and N. H. Fairley.—p. 385.
18 *Intestinal Protozoal Infections. D. L. Mackinnon.—p. 386.

14. **Lice-Borne Diseases and Disinfection.**—Hunter describes in detail the use and construction of two new types of Van disinfectors, following this up with the results obtained in Serbia and in Saloniki as he has already done for the Egyptian campaign.

15. **Embarkation and Boat Distribution Scheme.**—The object of Hemsted's scheme is to segregate patients on embarkation according to diseases, nationalities, ports of debarkation, etc., and to furnish each man immediately with a ticket for his life boat. The Graphic System is adopted and works admirably.

17. **Typhus: Weil-Felix Serologic Test.**—Craig and Fairley claim that this agglutination test is an invaluable aid in the diagnosis of typhus. Frequently the reaction appears only in the disease, and, as a rule, rapidly increases in titer. A rapid agglutination in a dilution of 1/10 on Garrow's agglutinometer, while not absolutely reliable, is sufficiently suspicious to justify the isolation of the case. This is especially true of persons uninoculated with T. A. B. or cholera. The serum of fifty uninoculated natives failed to give a reaction even in a dilution of 1/10. If the test be repeated at intervals of two days confirmatory evidence will, in the great majority of cases, be obtained. This test is particularly valuable in the case of natives in whom it may be difficult to distinguish clinically between severe relapsing fever and typhus.

18. **Intestinal Protozoal Infections.**—From May, 1917, to March, 1918, 1,680 cases (914 dysenterics and 766 nondysenterics) were examined by Mackinnon for intestinal protozoa. Only 131 had less than six examinations. Thirty-four patients had never been out of England. The rest, with very few exceptions, came from France. But it was found that 447 had at some time been in tropical and subtropical countries. Eight hundred and sixty-four, or 51.4 per cent., were infected with protozoa. *E. histolytica* was found in 209 cases, *E. coli* in 440, *E. nana* in 303, *Giardia intestinalis* in 226, *Chilomastix mesnili* in 85 and *Trichomonas hominis* in 13. The 914 dysenterics yielded 123 carriers of *E. histolytica;* the 766 nondysenterics yielded 86. Among 447 persons (dysenteric and nondysenteric) who had been in the East, 72 were infected with *E. histolytica;* of 1,233 persons from England, France and northern Italy, 136 were infected. Two hundred and eighty dysenterics who had been in the East had among them as many as 56 carriers, whereas 634 French and English dysenterics yielded only 67. Of 131 carriers who were treated for twelve days with emetin bismuth iodid, 69 relapsed after a first treatment. Of 16 who went on to further treatment, 8 were eventually cleared. At least 58 per cent. of the relapses took place in the first week. Observations on 5 cases of *lamblia* dysentery treated in France with methylene blue and declared free of the organism do not suggest that this is an effective treatment.

Medical Journal of Australia, Sydney

Aug. 31, 1918, **2**, No. 9

19 Conditions Found in Amputation Stumps. A. T. H. Nisbet.—p. 173.

Sept. 7, 1918, **2**, No. 10

20 Organization and Surgery of Military Orthopedic Hospitals with Special Reference to Nerve Surgery. L. G. Teece.—p. 197. To be continued.
21 Treatment of Phthisis by Means of Paratoluene-Sodium-Sulphochloramin (Chloramin-T). F. W. Waters.—p. 200.

Sept. 14, 1918, **2**, No. 11

22 Associated Study of Clinical and Macroscopic and Microscopic Appearances of Carcinomatous Tumors of Breast. H. C. Rutherford-Darling.—p. 217. To be continued.
23 Organization and Surgery of Military Orthopedic Hospitals, with Special Reference to Nerve Surgery. L. G. Teece.—p. 219.

Archives des Maladies de l'Appareil Digestif, etc., Paris

May, 1918, **9**, No. 12

24 *Intestinal Bilharziasis. P. Carnot.—p. 661.
25 *Digestive Activity of the Stomach. L. Meunier.—p. 683.
26 *Cancer of Upper Esophagus. E. Cottin and C. Saloz.—p. 689.
27 Colon Reactions. F. Moutier.—p. 697.

24. **Intestinal Bilharziasis.**—Carnot gave daily enemas of thymol in an oil emulsion and gave thymol also by the mouth, with good results in the two cases reported.

25. **Test for Strength of Gastric Digestion.**—Meunier has the patient swallow a pearl of ether, enclosed in a little rubber bag, the neck of the bag tied with a cord of some substance which is digested by gastric juice. When this cord yields to the digestive juices, and the sac thus spreads open, the ether escapes and the patient belches. The length of the interval that elapses between the swallowing of the pearl and the characteristic eructation is an index of the strength of the digestive forces. He used catgut at first to tie the sac, but found *filandre* cord better for the purpose. This *filandre* is made like ordinary catgut from the small intestine of sheep, but whereas catgut is made from the third layer, next the mucosa, the *filandre* is made from the second, the purely muscular tissue layer. This permits more even digestion. The ether pearl is tied in the center of a disk of thin rubber tissue, about 3 cm. in diameter. This is drawn up and held by a fine elastic drain, the ends of which are tied together with the strip of *filandre*. As this yields to digestion by the gastric juice, the ether pearl falls out; as it bursts, the patient feels a peculiar sensation and belches the ether. Taken with an Ewald test meal, the ether eructation occurs in normal conditions in fifty or sixty minutes. Meunier is convinced that the findings with this test are more exact and reliable than with chemical tests, as the latter require the stomach tube, and the information derived from it applies only to that special moment. A series of intubations would be instructive, but this would certainly modify the motor functioning of the stomach and thus secondarily modify gastric secretion. The ether pearl, on the other hand, swallowed with the meal, undergoes digestion along with the food, and gives the warning signal only when the digestion has reached a certain stage. It is thus a true physiologic index.

26. **Cancer of Upper Esophagus.**—Cottin and Saloz remark that the laryngeal form of cancer of the esophagus is the one hardest to diagnose. The dyspnea, the attacks of suffocation, point to the air passages. The intense pain from pressure on the brachial plexus and sympathetic nerve may suggest angina pectoris, while the partial or total aphonia or dysphonia suggest primary laryngeal disease. The diagnosis generally has to be made by exclusion. In a case described, spasms of coughing and of increasing dyspnea were the only symptoms at first. In four months the voice was bitonal, and eating brought on paroxysms of coughing. There was paralysis of the left recurrent nerve, and the disturbances were attributed to this at first, but, by exclusion, the attention was finally focussed on the upper esophagus, and necropsy confirmed the assumption of malignant disease at this point.

Bulletin de l'Académie de Médecine, Paris

Aug. 13, 1918, **80**, No. 32

28 *Influenza. F. Bezançon.—p. 158.
29 *Scarlatinal Endocarditis. P. Nobécourt.—p. 162.
30 Polymicrobian Antigonococcus Vaccine. G. Baril.—p. 164.

28. **Influenza.**—Bezançon states that the pneumococcus is decidedly the predominant microbe in the prevailing epidemic of influenza at Paris. The frequency and the severity of the bronchopulmonary complications are striking, and also the number of cases of zona that have followed it. In one hospital there were over twelve cases of influenzal herpes zoster in one month.

29. **Scarlatinal Endocarditis.**—Nobécourt ascribes to secondary infections the ulcerative and vegetative forms of endocarditis in scarlet fever. The scarlatinal virus alone induces a simple nonulcerative endocarditis, and this is the more common. Among the soldiers he encountered it in 2.5 per cent. of 278 cases of scarlet fever. The heart was affected, as revealed by auscultation, in 38.5 per cent. of the cases of scarlatinal rheumatism in soldiers. As a rule, scarlatinal endocarditis tends to recovery, the auscultation findings becoming normal once more. It passed into a chronic phase only in two of seven cases in soldiers. The myocardium seems to be left with a tendency to ready dilatation later. Tardy tachycardia is not infrequent. The endocarditis of scarlet fever is thus closely analogous to that of acute rheumatism. With both there are liable to be acute polyarthritis, pericarditis, etc., and, in children, chorea.

Bulletins de la Société Médicale des Hôpitaux, Paris

June 28, 1918, **42**, No. 23

31 *Tuberculosis of the Heart. Braillon.—p. 668 and p. 669.
32 *Serodiagnosis of Spirochete Jaundice. Martin and Pettit.—p. 672.
33 *Aortic Insufficiency. F. Trémolières and L. Caussade.—p. 675.
34 *Oliguric Heart Disease. O. Josué and M. Parturier.—p. 682.
35 *Latent Microbism. Bergeret and Botelho.—p. 688.
36 *Lethargic Encephalitis. P. Halbron and Coudrain.—p. 692.
37 Diaphragmatic Hernia. L. Giroux.—p. 695.
38 *Epilepsy. Mirallié.—p. 697.
39 Paratyphoid A. De V. de Lavergne and C. Gautier.—p. 700.

31. **Tuberculous Heart Disease.**—Braillon comments on the clinical picture of subacute tuberculosis of the endocardium, the valvular disturbance, mitral rhythm and progressive asystole, in young subjects, with a febrile temperature during the months before death, the fever of the tuberculosis type. The clinical picture differs essentially from that of streptococcus protracted endocarditis, and animals inoculated with blood developed tuberculosis in the two cases analyzed (both previously published).

He discusses further the simple endocarditic phlegmasia, with tubercle bacilli, which is the form of cardiac tuberculosis that develops in the resistant or with mild infection. Under other conditions, the bacilli are arrested in the capillaries and the miliary form of tuberculosis develops from the specific embolisms. In short, he concludes, tuberculosis must be regarded as a cause of chronic heart disease, possibly of as much importance as acute rheumatism and syphilis.

32. **Agglutination Test for Spirochete Jaundice.**—Martin and Pettit report that the Widal test applied to human icterohemorrhagic spirochetosis during the last six months has given conclusive findings from the clinical standpoint. Normal and syphilitic serums have never to date agglutinated these spirochetes, while the course of the case, the spirocheturia and inoculation of guinea-pigs confirmed the positive findings. The earliest date in which the agglutination test proved positive was the tenth day, but the agglutinins long persist in the blood, up to twenty-two months to date in one case, still agglutinating at 1:1,000. The immunisins do not appear till the fifteenth day.

33. **The Murmur of Aortic Insufficiency.**—In 50 per cent. of 82 men with aortic insufficiency examined, the murmur was heard in the left second and third interspaces, and only in 11 in the right second interspace; in 20 at the sternum; in 9 at the xiphoid appendix and once toward the apex. The cases in which it was heard at the left were all recent ones. With an old aortic lesion, the diastolic murmur is heard on the right side, and radioscopy shows hypertrophy of the left ventricle with dilatation of the right cavities and deviation of the axis of the aorta upward and toward the right. The mechanism of this is explained with diagrams. In the recent cases, with left murmur, the left ventricle is simply hypertrophied, the aorta still vertical. In a little more advanced stage, the murmur is heard at the sternum, and the aorta has begun to slant toward the right.

34. **Oliguria of Cardiac Origin.**—Josué and Parturier report a typical case which confirms that myocarditis is able, alone, to induce oliguria with such retention of fluids in consequence that there is pronounced dropsy. The latter resembles that of renal origin, but the kidneys are sound. The trouble is

merely that the heart cannot pump the fluid to the kidneys in sufficient amounts. A drop in the output of urine is the capital symptom which should suggest a failing myocardium. Even if the kidneys are diseased, the heart may be mainly responsible for the oliguria. The proof for these assertions is provided by the rapid subsidence of the dropsy under digitalis alone.

35. **Latent Microbism.**—In one of the two cases described, latent infection in a war fracture flared up two years after it had healed. The staphylococcus and an anaerobic streptococcus were responsible for it. In the second case the interval was twenty-three months, and the staphylococcus and streptococcus found were facultative anaerobes.

36. **Lethargic Encephalitis.**—The aviator of 26 was taken suddenly with headache and torpor. The somnolency was almost continuous, and strabismus and ptosis varied from day to day. For a few days there was hemiplegia and one day clonic movements, but no fever at any time. Lumbar puncture showed limpid fluid, apparently normal except for slight lymphocytosis. The symptoms gradually subsided and complete recovery now impends; the tendency to somnolency persisted for eighteen days, with intermittent headache.

38. **Epilepsy.**—Mirallié insists that salt should be discarded absolutely as also tea, coffee and alcohol. Then the doses of bromids can be materially reduced, and such improvement may then be realized that it amounts to an actual cure. He gives a moderate dose of the bromid every day, without interruption. When his patients go thus two or three years without a seizure, he reduces the dose of the bromid, but emphasizes that absolute abstention from salt is the main thing. In his first series of 181 cases, only 83 followed his instructions. At that time he ordered merely restriction of salt. In 12 cases the results were negative; in 18 there was improvement and 53 had no further seizures. Since 1912, 52 of a later series of 133 cases followed instructions, and 31 have had no further seizures and 18 have been much improved; more or less benefit has been realized in all but 3 cases. Of 10 men in one institution, all were improved and 5 apparently cured, as also 9 of the 12 women, all showing marked improvement. The youngest of the clinically cured was 7, the oldest 63 years of age. The seizures in one case had been frequent from the age of 7 to 37, but there have been none since this treatment was instituted. The best results were realized in families in which the mother did the cooking, and she was able thus to keep all salt out of the bread, the butter, etc. When this was left to servants, the salt was not banished so rigorously. Full success was realized only in the cases with absolute abstention from salt, tea, coffee and alcohol. Sugar, pepper, vinegar and lemon juice were allowed freely. The benefit was prompter and more pronounced in persons who had previously used much salt. The other symptoms of epilepsy were not modified so early as the actual seizures. The diet, except for the salt and stimulants, can be varied and liberal, but must be served entirely without salt. The failures were always in the wealthy homes.

Journal de Radiologie et d'Electrologie, Paris

March-April, 1918, **2**, No. 2. Pub'd August

40 *Mute Tuberculous Cavities in Lung. J. Aimard.—p. 49.
41 *Roentgen Examination of Spondylitis. Péhu and Daguet.—p. 53.
42 *Localization of Deep Projectile. L. Patte.—p. 57.
43 *Bulletin of Radiologic Service.—p. 65.

40. **Mute Tuberculous Cavities.**—Aimard gives the roentgen findings in a number of cases in which there was nothing to suggest a cavity in the lung otherwise. A silent cavity in the left lung is usually at the apex; in the right lung it may be found at the apex, base or middle of the lung. When the outline is distinct, in clear lung tissue, the cavity is of a fibrous type. An active cavity may show a hazy outline in the midst of infiltration. The outline of an arrested cavity usually grows more and more indistinct until the outline quite disappears. With sclerosis and consequent deformity of the superior interlobe, a shadow may be cast suggesting the floor of a cavity, ribs aiding to form an outline resembling that of a tuberculous cavity at the right apex.

41. **Deforming Spondylitis.**—Roentgen study of six cases seems to show that chronic spondylitis with tendency to ankylosis, and rhizomelic spondylosis seem to be different forms of chronic rheumatism. The two dorsal and first two lumbar vertebrae are usually first and predominantly affected.

42. **Localization of Deep Projectile.**—The method described is based on the use of a small diaphragm and measured rotation of the tube.

43. **Army Roentgen Bulletin.**—This section contains reports of a number of cases interesting from the roentgen standpoint, and a number of modifications in roentgen technic worked out by radiologists in the service. They include twin tubes for locating projectiles, a pedal control for rotating the tube, a simplified table for roentgen work, supplementary diaphragms, etc.

Paris Médical

Aug. 3, 1918, **8**, No. 31

44 *Lethargic Encephalitis. A. Netter.—p. 81.
45 *Meningococcemia. P. Sainton.—p. 86.
46 Partial Tetanus. G. Étienne.—p. 91.
47 *Malaria and Malariosis. Aynaud.—p. 95.
48 Colloidal Gold in Paratyphoid. Fortineau.—p. 97.
49 General Vaccination against Typhoid. H. Alliot.—p. 100.
50 Poliomyelitis in the United States. G. and J. Blechmann.—p. 105.

44. **Epidemic Lethargic Encephalitis.**—Netter gives a detailed history of this disease which he has encountered in ten adults and four children in his private practice and in six children in his service in a children's hospital. In the 105 cases in England, sixty-four were in adults, over 20, and only fifteen were in children under 10. He insists that the clinical picture is not that of a food intoxication nor of a special form of influenza nor of poliomyelitis. He reiterates that it is a *maladie autonome*, the specific agent of which is endowed with an affinity for the nerve centers. The epidemic began simultaneously in France and in England late last January. The normal findings in the cerebrospinal fluid are important for the diagnosis. All the features of the present epidemic are found in the accounts of an epidemic at Vienna in the winter of 1916-1917. An apparently similar epidemic was reported in the *Medical Journal of Australia*, March, 1918. In comparison with poliomyelitis, the mortality is greater, but integral recovery is more common than with poliomyelitis; the cerebrospinal fluid is more nearly normal. In poliomyelitis, he says, the symptoms are almost exclusively bulbar and protuberantial, and the nerve cells are found more pathologic, although the microscopic changes are not essentially different in the two diseases. In treatment he relies on hexamethylenamin, giving 1 or 2 gm. in the twenty-four hours. He has had no opportunity yet to give intraspinal injections of convalescent serum such as have proved effectual in poliomyelitis.

45. **Meningococcemia.**—Sainton describes seven different forms which meningococcus infection of the blood may assume: the fulminating or subacute form, the typhoidal, pseudomalarial, eruptive, articular and metastatic form, and the abortive forms. Herpes is frequent in meningococcus infection. In dubious cases the turbid spinal fluid may give the clue even in the absence of meningeal manifestations. In one case described, the meningococcemia dated from May 6, but meningitis did not develop till July 14. The danger of contagion of others in such a case is obvious. In the pseudomalarial form, the man may come and go freely during the free period between attacks, and thus sow the germs broadcast. Intravenous injection of antimeningococcus serum seems the logical treatment, but there is sometimes a dramatic reaction that might prove fatal. Artificial respiration, venesection and injection of ether were all that saved one of Sainton's patients in such a case. Similar experiences have been reported by Netter and by Marie, so that the intraspinal or subcutaneous route seems preferable.

47. **Malariosis.**—Aynaud warns that the suggestion exerted by actual injury from an accident or actual malarial disease, plus the talking it over with one's mates, may generate a state of mind in which the accident or the malaria—any accident, any malaria—is regarded as synonymous with indemnity. Soldiers who have had malaria and who get this

"malariosis" are all convinced that they have the absolute right to be exempted from further service to the end of the war, and to be supported after the war. When they are dismissed from the hospital they are told to keep on taking quinin. This means, they think, that they are not cured. If not cured of a disease contracted in the service, then they have a right to be taken care of. At present all they demand is exemption from further service, but the day that peace comes they will claim a pension for disability contracted in the service, and they will present a bunch of hospital cards, etc., with mention of malaria, anemia, etc., often written merely at the man's own dictation, without special examination. Army medical officers must beware of breeding this "malariosis" with its train of pensions and life-long loafing. Men with malaria should be under the care of experts in malaria, and when dismissed they should not be told to continue taking quinin. Every time a man with malariosis comes into the hands of a physician who is not a malaria specialist, the man returns to the hospital for a course of treatment, and always he seeks a different hospital. Malariosis is becoming seriously prevalent, and both medical and military measures are necessary to stamp it out.

Presse Médicale, Paris

Aug. 29, 1918, **26,** No. 48

51 *Access to Heart. P. Duval and H. and P. Barasty.—p. 437.
52 *Clinical Tests of Labyrinth. H. Piéron.—p. 439.
53 *General Anesthesia by Intubation. Guisez.—p. 441.
54 Histochemical Constitution of Pus. A. Demolon.—p. 443.
55 Mercury-Lead Plaster. L. A. Longin.—p. 445.

51. **Median Pericardotomy.**—Duval and Barasty show with illustrations the various methods of access to the heart and the large vessels at the base of the heart. They expatiate on the advantages of a median technic with which the upper end of the sternum is cut across and the body slit lengthwise. The incision is thus in the shape of a T, but the access thus afforded to the mediastinum and upper abdomen is surprisingly extensive as the halves of the sternum are turned back. This bone is of such a spongy nature that it grows together at once without suture, so that this median thoraco-abdominal pericardotomy seems to be the best means of access to this region.

52. **Clinical Tests of Labyrinth Functioning.**—Piéron cites the general laws which govern labyrinth functioning, and describes the mechanism and interpretation of the findings in different pathologic conditions.

53. **General Anesthesia by an Intratracheal Tube.**—Guisez remarks that the advantages of administering the anesthetic through a rubber tube are so great that it has proved possible to materially modify the technic of operations on the face and neck. He has applied it in 330 cases, and there has never been the slightest by-effect from the intubation. An olive tipped sound, No. 26 to No. 30, is introduced by one skilled in direct laryngotracheoscopy, the patient under the influence of a few whiffs of the anesthetic. A spinal spring is wound around the sound where it passes between the teeth, and the sound is pushed in about half way down the trachea. A string fastened to it and tied around the neck holds it in place, and a sponge is packed around it in the nasopharynx. As there is no possibility of blood and secretions getting into the air passages, there is no need to hold the head far back. One unexpected advantage of this technic is the absence of postoperative nausea and vomiting. Only six of the 330 patients had any tendency to vomiting, and in these it was slight; the preoperative first whiffs of the anesthetic were probably responsible for it. These experiences demonstrate that postoperative vomiting cannot be ascribed to a toxic action on the liver. It seems more rational to ascribe it to swallowing of chloroform fumes and of saliva saturated with them. When this is prevented, there is no vomiting. Under the influence of any toxic gas, constant swallowing movements are kept up, asleep or awake, and the swallowed air and fumes amply explain the distension of the stomach walls and irritation of its mucosa. In the gassed, he has found evidences all along in the esophagus of toxic action from the swallowed gas. All of which confirms his assumption that by this intubation technic, preventing all swallowing, we can ward off postoperative nausea and vomiting in the majority of cases, outside of damaged liver and kidneys.

Policlinico, Rome

Aug. 18, 1918, **25,** No. 33

56 *Adhesive Plaster Treatment of Wounds. C. Mancini.—p. 773.
57 Campaign against Malaria. D. Falcioni.—p. 777.

Aug. 25, 1918, **25,** No. 34

58 Secondary Arterial Hemorrhage. S. Tarantino.—p. 797.
59 Sending Blood for Examination. Domenici.—p. 800.

56. **Adhesive Plaster as Dressing for Wounds.**—Mancini relates that three years' experience has convinced him of the advantages of applying narrow strips of adhesive plaster directly to wounds. They heal under this dressing much faster and better than under gauze dressings, even when the gauze can be kept constantly moist. The strips of plaster are cut long enough to extend for some distance on each side of the wound, and they are drawn tight and pressed down on the wound. Under this combination of pressure, constriction and protection, without any antiseptic, the granulations are held in proper proportions, and the wound heals over fast. The only contraindication is progressing ulceration; under all other conditions, this method has superior advantages, he reiterates. The secretions escape between the strips of plaster. He has seen extensive bed sores heal under this treatment. It acts better when the strips are left unmolested for six or eight or more days. The gauze above can be changed as desired. This plaster treatment has the same protecting action as a paraffin film, but the latter lacks the constriction and pressure possible with the plaster. He uses ordinary adhesive plaster about 2.5 cm. wide. The simplest way to sterilize it, he says, is to leave it in alcohol for a day or two and then burn out the alcohol.

Riforma Medica, Naples

Aug. 3, 1918, **34,** No. 31

60 *Adequate Dietaries. F. Bottazzi.—p. 605.
61 *Experimental Atheroma. C. B. Farmachidis.—p. 612.
62 *Spirochetes in Urine. F. Giugni.—p. 614.
63 Welfare Work for Children in Italy. A. Ascarelli.—p. 615.
64 Technic for Douching the Nose. G. Gradenigo.—p. 616.

60. **Soldiers' Rations.**—Bottazzi here replies to Baglioni and Rho. Their articles were summarized on pages 692 and 1256. He emphasizes the difference between the calculations of the chemist and the physiologist. Their figures are not interchangeable, for reasons which he explains.

61. **Changes in Myocardium Secondary to Sclerosis of Aorta.**—Farmachidis induced atheroma of the aorta in rabbits, and invariably the myocardium of the left ventricle developed sclerosis in consequence, without any general infection or intoxication.

62. **Spirocheturia.**—Giugni found spirochetes in the urine of a soldier with nodose erythema. This and some other experiences related confirm that spirochetes may be found in the urine without any connection with the disease the man may be having, or even in the healthy.

Rivista Critica di Clinica Medica, Florence

Aug. 3, 1918, **19,** No. 31

65 Factitious Phlegmons. G. Garin.—p. 361. Conc'n.
66 Instrument to Facilitate Pectoral Fremitus. Fabbretti.—p. 364.
67 *Toxic Gases in Warfare. C. Capezzuoli.—p. 367. Conc'n.

67. **Gases in Warfare.**—Capezzuoli reviews what has been published on this subject, especially the long array of Italian contributions. In conclusion he mentions that Professor Lo Monaco's experiments have apparently demonstrated that chlorin compound gases can be utilized to preserve meat, fish, etc., and may be destined to aid materially in food conservation in normal times. The gases he has been testing are not toxic, and do not modify the taste when used for this purpose. Specimens of tissue from a lung mummified by the war gas took the stains and responded to other histologic tests like normal tissue.

Amazonas Medico, Manaos

March, 1918, **1,** No. 1

68 Finger Prints of Brazilian Indians. G. Ramos.—p. 4.
69 *Nodular Leishmaniasis. A. Da Matta.—p. 13.

70 Fatal Syncope under Chloroform. J. De Moraes.—p. 16.
71 Retrograde Catheterization. T. Beltrão.—p. 23.
72 Ulcerating Granulomas. A. Da Matta.—p. 25.

69. **Nodular Leishmaniasis.**—In Da Matta's case the feet and lower legs were covered with nodules, some of them ulcerating. Some were confluent, and had the "mossy foot" aspect. The pseudoverrucous affection was of several years' standing and had proved rebellious to all other measures but prompt benefit and final healing of all the lesions followed intravenous injections of 1 per cent. tartar emetic, with local application of a 0.5 per cent. solution, and potassium permanganate. Sodium cacodylate was also given between the courses of injections during two months. The cure of the leishmaniasis was then complete; but there is still hypertrophy of the legs, probably from the chronic erysipelas which had developed as a complication.

Annaes Paulistas de Medicina e Cirurgia, S. Paulo

April, 1918, **9**, No. 4

73 *Urinary Stones in Children. R. Puech and Souza.—p. 73. Conc'n.
74 Syphilitic Facial Diplegia. L. Torres.—p. 89.

73. **Urinary Stones in Children.**—Puech and Souza have compiled thirty-five cases in the state of S. Paulo in the course of ten years, nearly all in the families of immigrant colonists. Only 3 per cent. were in girls; none of the children were less than a year old, and the majority were between 3 and 5. Phimosis was apparent in 70 per cent. of the cases. Suprapubic incision is the best treatment, suturing the bladder at once, but not including the mucosa in the suture. There has been no recurrence in any instance after this operation; the only death in the series was due to other causes.

Archivos Españoles de Enf. del Ap. Digestivo, Madrid

August, 1918, **1**, No. 8

75 Chemistry of Gastric Juice. L. Usobiaga.—p. 337. Cont'n.
76 Gallbladder Colics. A. L. Ruiz.—p. 358.

Archivos Españoles de Pediatria, Madrid

July, 1918, **2**, No. 9

77 *Croupous Inspiration. A. Hinojar.—p. 385.
78 *Enlarged Glands in Child's Groin. V. Juaristi.—p. 400.
79 *Aids to Memory in Infant Feeding. R. Eyzaguirre.—p. 404.

77. **Croupy Respiration.**—Hinojar describes some typical cases to show the importance of search for the often unsuspected cause for the *tirage* or croupy wheezing in a child, instead of assuming diphtheria as a matter of course. A physician called him up one night for intubation of a child with membranous croup, but he found that the suffocation was from the tonsils, and he at once cut out both tonsils, with complete recovery. The removal of inflamed tonsils, he adds, is not such a serious matter as some suppose. The clue in this and similar cases was that the child's crying voice and cough were clear, not hoarse. Another child was being treated for diphtheria but intubation proved impossible, and the child was brought to him. The absence of hoarseness in the infant's crying voice led to discovery of a retropharyngeal abscess and of the absence of false membranes. Another child was brought for tracheotomy on account of extreme dyspnea and *tirage*, but the voice was clear and the *tirage* seemed to be at the base of the thorax. Necropsy confirmed his assumption of tracheobronchial adenitis. A hoarse cough, with crying and speaking voice clear, locates the stenosis below the glottis. A clear cough, with hoarse voice, locates it in the glottis. When the cough and voice are both clear, the stenosis causing the *tirage* is above the glottis, in the pharynx. Stenosis inducing croupy inspiration is almost always in the larynx, and in children is acute.

When there are false membranes, these protect the mucosa of the larynx during intubation. Hinojar insists that under other conditions tracheotomy is more prudent, more certain and less dangerous than intubation, which should be restricted to laryngeal diphtheria. Puncture of the cricothyroid membrane is a procedure borrowed from the veterinarians, using the same trocars and elliptical section, the longer diameter transverse. He reiterates that this takes no more time than intubation, while it is free from its dangers and requires no special technic nor experience. It relieves the patient until the definite tracheotomy can be done. Zorraquin's valve tracheotomy permits free ingress of air but closes against expiration, so that the expired air has to escape through the natural passages. This prevents atrophy, etc., from disuse, while expiration can proceed more forcibly than is possible through the tracheotomy cannula, the vocal cords, etc., yielding more to pressure from below than from above. For these and other reasons stated, this valve tracheotomy seems from the theoretical and experimental standpoint to have numerous advantages, including the partial reestablishing of normal respiration with a positive tension during expiration. This safeguards the heart and lungs. An illustration is given of the valve device, a metal drum with mica disk adapted to the Broca tracheotomy cannula. Hinojar has had no clinical experience with it.

78. **Adenitis in Child's Groin.**—Juaristi says that among his 20 cases of this kind, in 4 the child had been referred to him with the diagnosis of appendicular phlegmon; in 3 others, under the diagnosis of coxalgia, and in 8 others everything had been thought of except the actual affection. The child's gait may deceptively simulate that with coxalgia. In one typical case the 8 months infant seemed to be suffering pain, with fever, but its appetite and digestion were good. Palpation of the contracted abdomen was negative, and no cause for the child's restlessness and crying was discovered until the ninth day, when the left leg was found swollen throughout. This was traced to a phlegmon in the groin, with a chain of five swollen glands.

79. **Calculations for Infant Feeding.**—Eyzaguirre gives the formulas advocated by different pediatrists, based on the age, weight, etc., of the infant. Comby's method seems to be the simplest, namely, to give the child 150 gm. for each kg. of weight, that is, 15 per cent. of its weight. The dilution of the milk is determined by a fraction of which the numerator is the child's age in months, and the denominator is the succeeding month. This for a 1 month child would give one-half milk; 2 months, two-thirds milk; 3 months, three-quarters milk. If this dilution is not enough, the fraction might be modified to a numerator representing the month before and the denominator the actual month of the child's age. A 3 months infant would thus be given two-thirds milk. Under 1 month, one-third milk seems preferable.

Cronica Medica, Lima

July, 1918, **35**, No. 661

80 Myopathy in Tuberculous Young Man. E. Odriozola.—p. 187.
81 Stuttering. L. D. Espejo.—p. 191.
82 Present Status of Leishmaniasis. E. Escomel.—p. 198. Conc'n.

Gaceta de los Hospitales, Mexico, F. D.

July, 1918, **1**, No. 4

83 *The Retina of the Horned Frog. I. Ochoterena.—p. 65.
84 Treatment of Phimosis from Chancre. F. Robles.—p. 69.
85 *Ocular Complications of Typhus. J. de J. Gonzalez.—p. 70.

83. **Comparative Neurology.**—Ochoterena's finely illustrated article describes the microscopic findings in the retina of the horned frog, and discusses the evolution of the eye.

85. **Ocular Complications of Typhus.**—Gonzalez states that he had ample opportunity to study the ocular complications during the great epidemic of typhus in Mexico during 1916 and part of 1917. It spread to the remotest hamlet of the central tableland. In his town, Leon, there were more than 8,000 cases of typhus. All ages were affected, including infants a year old, who previously had been deemed immune. He encountered cases of complications from vasodilatation, from local infection, from toxic action, and paralysis or contracture of the oculomotor muscles secondary to toxic action on the nerve centers or meninges. In other cases, syphilitic lesions developed in eyes damaged by the typhus. Still another complication was necrobiosis of the cornea from disturbance in its nutrition in the course of extremely severe typhus. The cases in this last group all terminated fatally, and nothing proved effectual in warding off this necrobiosis of the cornea. On the other hand, the complications from local infection could be warded off with care, tending the

catarrhal conjunctivitis which inevitably preceded the corneal ulcer. The ulceration was always central, the patients lying in their stupor with lids partly open so that the cornea got dried, the epithelium cracked and infection was thus invited. The eyes should be washed out daily with isotonic saline to ward off conjunctivitis; when it developed, a weak solution of a silver salt always proved effectual in his hands.

Gaceta Medica de Caracas, Venezuela

July 31, 1918, **25**, No. 14

86 *Balantidium Dysentery in Venezuela. J. A. Tagliaferro.—p. 145; R. G. Rincones.—p. 148.

Aug. 15, 1918, **25**, No. 15

87 *Spirochete in Rats at Caracas. J. Iturbe and Gonzalez.—p. 158.
88 Relations Between Brazilian Trypanosomiasis and Endemic Goiter. A. Ayala.—p. 160.

86. **Balantidium Dysentery in Venezuela.**—Tagliaferro describes three cases and some negative attempts to transmit the disease to cats. One of Tagliaferro's patients kept pigs, and various data on record testify to the identity of the *Balantidium coli* found in man, in pigs and in monkeys. Rincones remarks that in the rural districts domestic animals often share the family hearth. He says, "The olfactory orchestra of the foods and exfoods disintegrated by the digestive organs of the various domestic animals, fowls, rats and mice under the family roof, runs the whole scale of odors, and like a dirge rises above the promiscuity of these heedless beings all crowded into one room." He adds that 153 cases of balantidiasis are on record in accessible literature, with a death rate of 23 per cent. In conclusion Rincones describes the method of treating coloproctitis caused by ciliated infusoria, as suggested by F. Smithies of Chicago, and he urges a trial of it in balantidium dysentery.

87. **Spirochete of Hemorrhagic Jaundice Found in Rats at Caracas.**—Iturbe and Gonzalez inoculated guinea-pigs with an emulsion of the kidneys of ten rats and of seven rats. One guinea-pig developed typical hemorrhagic febrile jaundice, and spirochetes were recovered resembling in every respect the spirochetes described by the Japanese and the Belgian writers.

Prensa Medica Argentina, Buenos Aires

July 20, 1918, **5**, No. 5

89 Supracondylar Fractures. M. H. Vegas and C. Lugones.—p. 45
90 Diagnosis of Tuberculosis in Children, especially the Latent and Masked Forms. G. A. Alfaro.—p. 47. Conc'n.
91 Cerebellar Tumor. H. Lea-Plaza.—p. 49.

Repertorio de Medicina y Cirugia, Bogota

July, 1918, **9**, No. 10

92 *Scleroderma or Leprosy? J. Aparicio.—p. 510; I. Rodriguez. —p. 522.
93 *Unclassified Tropical Lesions. P. Martinez and Lopez.—p. 525.
94 *Cocain Local Anesthesia. A. E. Marulanda.—p. 534.
95 Metabolism in Diabetes. E. Gomez.—p. 537.

92. **Scleroderma or Leprosy.**—A case is described over which there has been much discussion, as the patches of scleroderma are accompanied by nervous disturbances remote from these patches. The ulnar neuritis, in particular, does not fit into the scleroderma frame. Aparicio's decision therefore is that the case is an incomplete form of nervous leprosy, and that isolation is not required. Rodriguez reports that five applications of electricity in this case improved the skin patches until the scleroderma had nearly disappeared.

93. **Tropical Pathology.**—Martinez and Lopez give illustrations of two cases in which a large tumor had developed just above the ankle, with a smaller tumor on the other side of the leg. They have encountered a number of cases of these juxta-articular nodules near the ankle, knee or hip joint. They seem to be a torpid fibroma growth, close to a large joint, peculiar to the tropics. An illustration is also given of a type of ulceration on the dorsum of the foot with which there is so much retraction of the cicatricial tissue that the foot is drawn up till severe deformity results. These "retractile ulcers" develop after a trauma, as a rule. The resulting deformity may suggest ainhum, or the deformity from retraction in these cases may be equal to that from an extensive burn of the third or fourth degree. Amputation was required in the two cases illustrated. In a third group of cases the ulcerative process begins between the toes and runs a highly destructive course, the toes dropping off and the destructive process invading the dorsum of the foot. The discharge from it is profuse and fetid, but the tendency to a spontaneous cure excludes malignant disease.

94. **Cocain Local Anesthesia in Abdominal Surgery.**—Marulanda addresses his remarks to physicians in regions without hospitals. He expatiates on the advantages of local anesthesia in these conditions, and especially on the use of cocain for the purpose. In Colombia, the lack of corsets, the numerous pregnancies and the hard manual work of the women favor production of umbilical hernia, and he describes four cases in which he operated for this, under cocain anesthesia, with ease and complete success. Umbilical hernia in women inclined to obesity develops with such alarming symptoms that the physician cannot believe that the hernia alone is responsible for the intense colic pains. They may coincide with digestion, and if the woman has a tendency to neurasthenia, she may experience pains and symptoms which lead the physician widely astray. He warns further that the presence of ascarides is practically certain in the rural districts of his country, and it is almost indispensable to administer a vermifuge the day before the contemplated operation. Otherwise there is liable to be paralysis of the intestine. The inexperienced may feel called on to open up the sutured herniotomy wound, but under 0.2 gm. of santonin all subsides at once. He uses a 1 per cent. solution of cocain, thus anesthetizing a broad zone of the skin.

Revista Española de Medicina y Cirugia, Barcelona

July, 1918, **1**, No. 1

96 *Transplantation of Nerves and Neurotropism. S. Ramon y Cajal. —p. 2. Concluded in No. 2, p. 49.
97 Tuberculosis and Antityphoid Vaccination. J. Peset.—p. 9.
98 Drainage in Hydrocephaly. J. M. Bartrina Thomas.—p. 13.
99 A Year's Surgical Work. Id.—p. 13.

August, 1918, **1**, No. 2

100 *Cholecystostomy versus Cholecystectomy. S. Cardenal.—p. 57.
101 Stenosis of Duodenum. Urrutia.—p. 65.

96. **Secret of Rapid Repair of Gap in Nerve.**—Ramon y Cajal called attention in 1892 to the ameboidism of newly formed nerve fibers seeking the proper direction for bridging a gap in a nerve. Later he became convinced that some substance in the nerve stump attracted the young fibrils, and thus guided them in the right path. He reviews what others have published on this subject, and reports new experimental research. Everything seems to indicate that the substance which attracts the sprouting fibrils is in the cells of the sheath of Schwann. These cells may act effectually whether they are in the nerve graft or in the peripheral stump. But in order to exert this attraction these cells must be alive and actively functioning. The attraction is the more intense the younger the animal and the greater the vitality of the tissues. It seems to be immaterial whether the Schwann cells are in the stump or in the interposed graft, provided their vitality has not been impaired.

An interposed nerve graft obtained and implanted with the minimum of injury of the tissue cells, materially hastens repair over a gap in the nerve, the sprouting fibrils rapidly running down through the graft and penetrating the peripheral stump. There is more in this phenomenon than merely growth along the lines of least resistance. Dead Schwann cells have none of this neurotropic action. Twelve illustrations show the different behavior of the sprouting fibers under different conditions. For example, if half of the sciatic nerve of a kitten is severed, the other half left intact, the new sprouting fibrils are attracted only by the Schwann cells in the peripheral stump, and very few diverge from the axial direction. But if, when the half of the nerve is severed, the other half is slightly cut with the scissors, then the sprouting fibers crowd sideways into the second half, and very few work down toward the peripheral stump. One illustration shows the rapid repair in the sciatic nerve of a kitten thirteen days after the nerve had been resected and the resected segment slit and replaced at once, before it had had a chance

to get chilled. The sprouting fibrils after passing through the slit graft were attracted by the Schwann cells in the other half of the graft, and turned back into it. Other fibers wandering around in response to the attraction of the Schwann cells were unable to reach them before making a circuit around the graft. Other illustrations show the good results, although less perfect, obtained with a nerve graft from another species, or with a graft taken from another nerve in the same animal.

100. **Cholecystostomy versus Cholecystectomy.**—Cardenal admits that cholecystectomy is indicated when the gallbladder is inflamed from the presence of stones and the common bile duct is free from obstruction. When the common or hepatic duct is obstructed and this cannot be corrected at once, he advises against cholecystectomy. When the obstruction seems to be permanent, as with cicatricial stenosis, he advises at once an anastomosis between the gallbladder and the stomach or the duodenum. Otherwise he advocates deep cholecystostomy, suturing the gallbladder not to the skin but to the peritoneum. In several cases he has made an opening between the gallbladder and the stomach, and the functional results have been perfect. There was never any disturbance from this emptying of the bile into the stomach. In one case of cancer of the pancreas the patient improved remarkably after this operation, and there were no further disturbances from the biliary apparatus.

Revista del Instituto Bacteriologico, Buenos Aires

April, 1918, **1**, No. 3

102 *Heterogenous Hemolysins. A. Sordelli and G. Fischer.—p. 229.
103 *The Ticks of Argentina. B. Barbará and R. L. Dios.—p. 285.
104 Immunity to Anthrax: Fate of Anthrax Bacilli in Normal and Immunized Sheep. R. Kraus and P. Beltrami.—p. 323.
105 Cancer in Domestic Animals in Argentina. A. H. Roffo.—p. 333.
106 *Action of Snake Venom on Proteins. Houssay and Negrete.—p. 341.
107 Hemogregarine in Blood of a Snake. A. Senez.—p. 375.
108 *Modification of Gram Stain. A. Senez.—p. 385.
109 Toxic Principle of Baccharis. V. Arreguine, Jr.—p. 389.

102. **Heterogenous Hemolysins.**—Sordelli and Fischer review the literature on the subject of the natural hemolysins and especially the hemolytic properties of certain organs in certain animals for sheep and goat blood. They then report extensive personal research for comparison of the characteristics of isogenous and heterogenous hemolysins from this source. The conclusions are given in detail in English, French and German as well as Spanish.

103. **The Ticks of Argentina.**—Over four pages of bibliography and three plates accompany this comprehensive article. Four genera of ticks found in Argentina are described, with or without a shell, including eleven species. Twelve genera of ticks are known in all.

106. **Action of Snake Venom on Proteic Substances.**—Houssay and Negrete tested the action of the venom of different species of poisonous snakes on the various elements of the blood and tissues, on casein and on gelatin. Each venom has its characteristic properties, but all seem to alter the physical-chemical state of albuminous substances, and then digest them later. The proteolytic properties are distinct from the coagulating, agglutinating, toxic and hemolytic properties of the venom. They are much stronger in the venom from certain species than in others.

108. **Modification of Gram Technic.**—Senez relates that precipitation can be avoided by the technic he describes, while the specimens retain their color much better. The diphtheria bacillus, in particular, takes the stain distinctly and uniformly.

The stain is made by triturating 2 gm. of crystal violet, adding 100 c.c. of distilled water and, when entirely dissolved, adding 1.6 gm. of sodium chlorid. When thoroughly mixed, a pellicle forms on the surface and a precipitate is thrown down. This precipitate is collected on a filter paper and dried in the incubator. The powder thus obtained keeps well in small vials, well plugged. To 0.5 gm. of this powder are added 50 c.c. of alcohol at 95 degrees, and the Erlenmeyer jar is agitated until the powder is entirely dissolved, after which 130 c.c. of distilled water are added. There is not the slightest precipitation. After fixation of the specimen with heat, it is then stained with a few drops of this fluid for half a minute. It is then drained off, and the specimen is immersed in the Gram solution until the violet stain veers toward black. Then the specimen is treated with 90 per cent. ethyl alcohol, letting it fall a drop at a time on the slide, held slanting, until it does not wash away any more of the stain. The specimen is then rinsed freely in water, and it is ready for the counter stain or for mounting. The fuchsin counter stain is made in the same way, substituting fuchsin rubina B for the crystal violet. The stains thus made are bright in tint; there is no precipitation with them during the staining procedure, and they keep indefinitely. They can be used to advantage in place of Ziehl's solution for simple staining in general, and for restaining specimens treated by Gram's method. Gram positive bacteria stain a dark violet, contrasting well with fuchsin stained elements.

Semana Medica, Buenos Aires

June 6, 1918, **25**, No. 23

110 Dispensaries for Social Hygiene. E. R. Coni.—p. 633.
111 *Identification of Arsphenamin. J. A. Sanchez.—p. 635.
112 Gastro-Intestinal Disease in Children. R. Cabrera and T. Scannavino.—p. 640. Cont'n.
113 Treatment of Acute Rheumatism. S. L. Brian.—p. 651.

111. **Identification of Arsphenamin Preparations.**—Sanchez describes the methods in vogue, and gives the details of a volumetric method with molybdic acid; also of a colorimetric technic with sodium nitrite and hydrochloric acid.

Siglo Medico, Madrid

July 27, 1918, **65**, No. 3372

114 *Pathology of the Occult. D. A. Gimeno.—p. 585.
115 *Genesis of Catacrotous Waves of Pulse. M. Gil-Casares.—p. 587.
116 *Health and Social Insurance. M. Salazar.—p. 589. Conc'n.
117 Influenza Mortality at Madrid. L. Lasbennes.—p. 592.

114. **Pathology of the Occult.**—Gimeno discourses on the many useful surprises which modern symptomatology has revealed. "Who knows what the future may yet reveal in the way of signs and symptoms which now we are too blind to see. The term 'incubation' means only ignorance on our part."

115. **Palography Findings.**—Gil-Casares gives some palograms of the pulse which seem to sustain his theory as to the mechanism of the production of the pulse wave. This photographic method of registering the pulse wave has thrown light, he says, on certain elements of the wave, as he explains in detail.

116. **The Public Health and Social Insurance.**—Salazar is inspector general of the Public Health Service. He describes what has been done in the line of social insurance in different countries, reiterating in conclusion that the sanitary redemption of any country is a work of general education, on the one hand, and of the solution of the economic problem of the laboring classes, on the other.

Mededeelingen van den Burg. Geneesk. Dienst, Batavia

1918, No. 4

118 *Malaria in Sumatra. H. N. van der Heyden and Schüffner.—p. 1.

118. **Malaria in Sumatra.**—This entire number is devoted to a study of practical means to combat malaria in a seashore district. The report is profusely illustrated, with photographs and maps showing the exact points where various measures are needed. It is emphasized that the general level of ground water must be kept as low as possible; existing trenches must be deepened, and branching channels provided. The terminals in the sea must have valves preventing inflow of the tides. In all drainage works in the Indies, the engineer must be guided by the biology of the mosquito. For example, the floor of the channels must be so arranged that if they should happen to run dry, there should be no crevices or cavities in the bottom that could retain a little water. No one must be allowed to dig trenches or ditches on his own initiative. The profession in malarial regions should be trained in prophylaxis, and the engineering authorities should consult constantly the local physicians.